

CD RDS EON RECEIVER

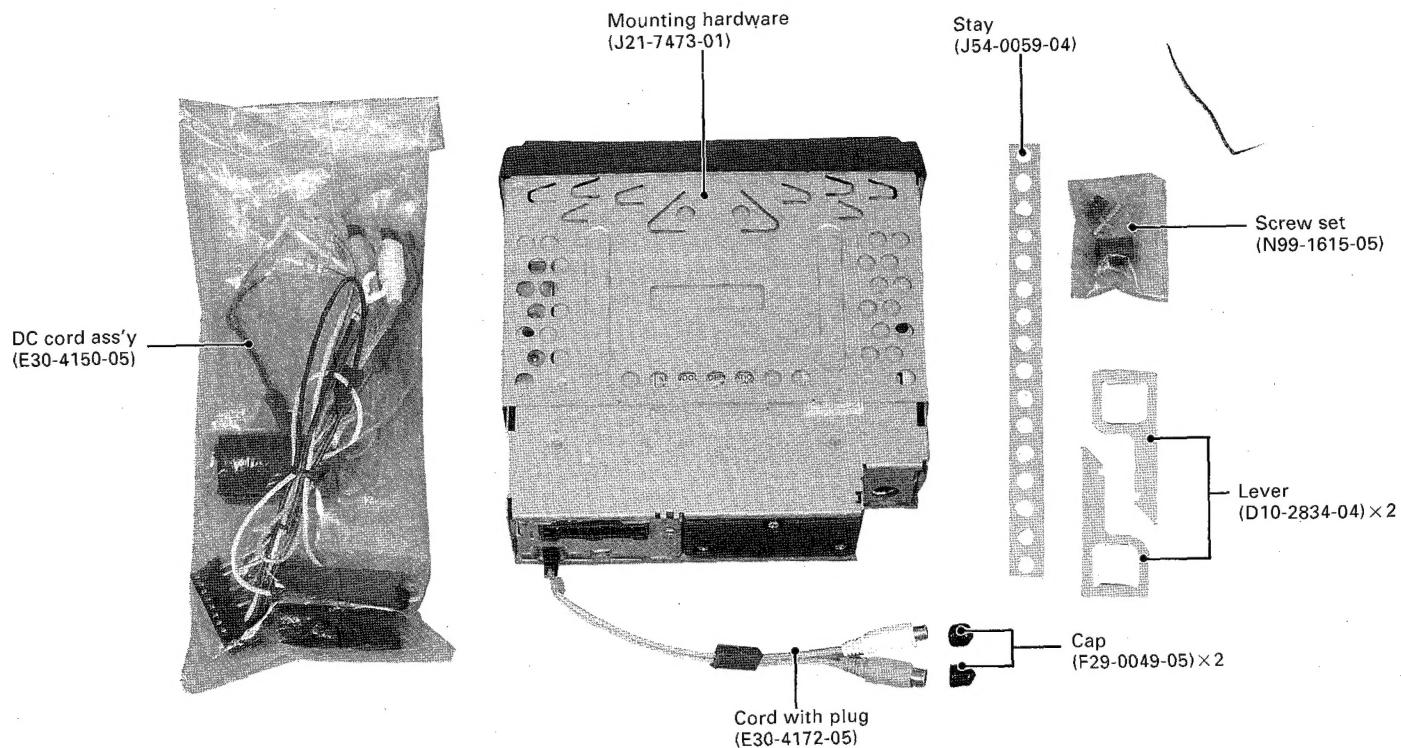
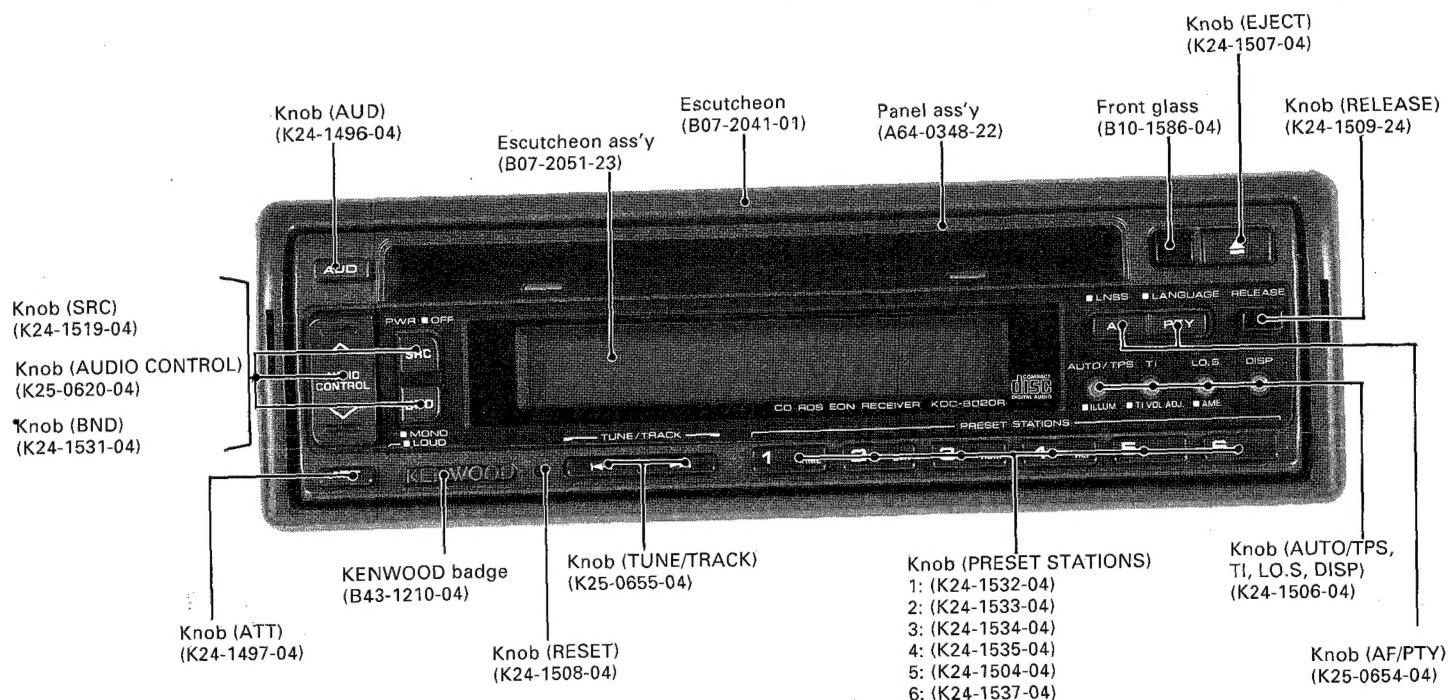
KDC-8020R

SERVICE MANUAL

KENWOOD

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Mechanism extension cord for
service W05-0481-00 (23P)



KDC-8020R

CONTENTS/CONNECTIONS

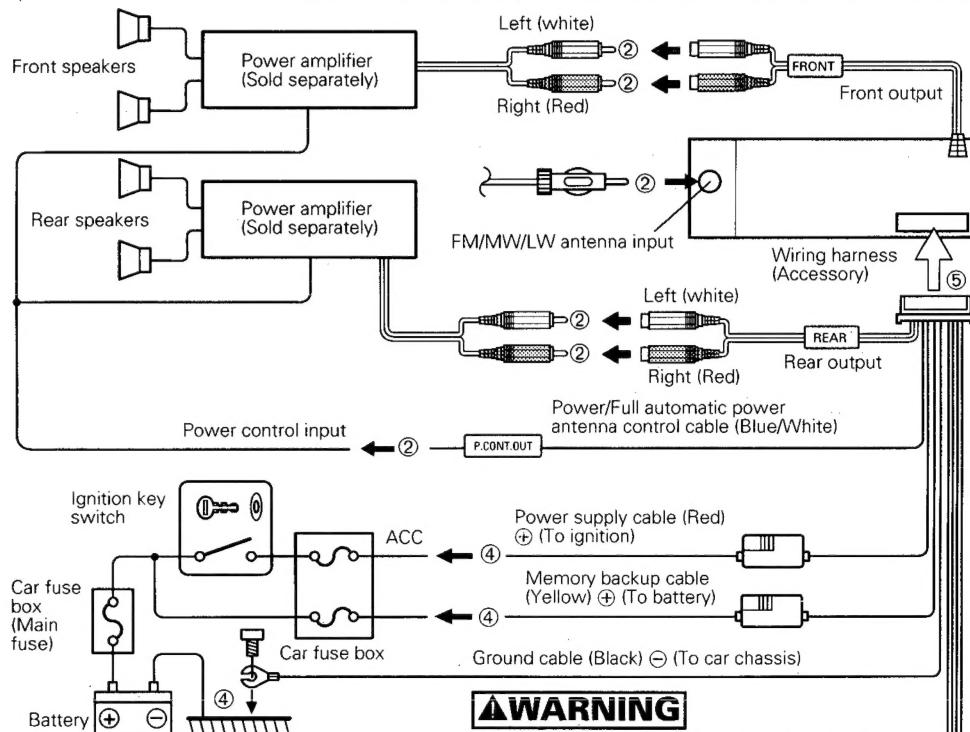
CONTENTS

| | |
|--|----|
| CONNECTIONS | 2 |
| TROUBLESHOOTING GUIDE | 3 |
| BLOCK DIAGRAM | 4 |
| CIRCUIT DESCRIPTION | 5 |
| MECHANISM DESCRIPTION | 36 |
| ADJUSTMENT | 42 |
| ABGLEICH | 44 |
| PC BOARD (X25-7232-70 Component side view) | 45 |
| PC BOARD (X25-7232-70 Foil side view) | 47 |

| | |
|--|------------|
| PC BOARD (X32-4010-00 Component side view) | 49 |
| PC BOARD (X32-4010-00 Foil side view) | 51 |
| SCHEMATIC DIAGRAM | 53 |
| ADJUSTMENT (MECHANISM) | 65 |
| EXPLODED VIEW (UNIT) | 70 |
| EXPLODED VIEW (PANEL) | 71 |
| PARTS LIST | 72 |
| SPECIFICATIONS | Back cover |

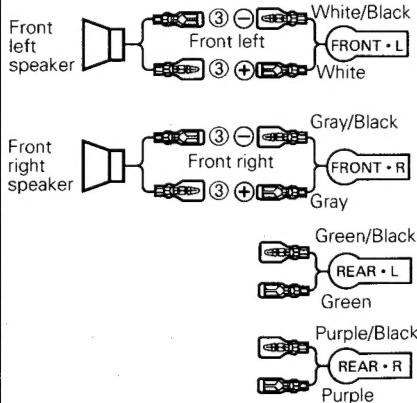
CONNECTIONS

* Circled numbers indicate the procedures described in the Installation Procedure.



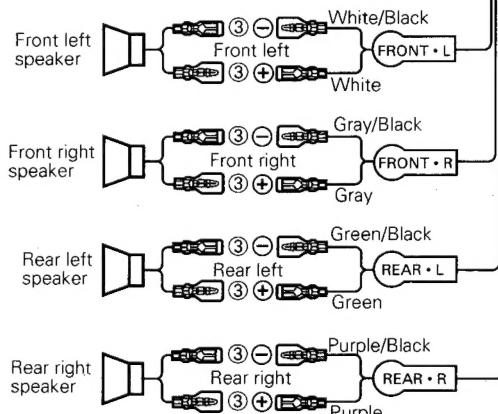
CAUTION

When two speakers are connected to the system, be sure to connect both of them to the front output or rear output. In other words, do not connect the positive connector of the left speaker to the front output and the negative connector to the rear output.



WARNING

To prevent fire when the power supply cable (Red) or memory backup cable (Yellow) is short-circuited by coming into contact with the vehicle chassis (ground), only connect the power supply after making the fuse box connections.



KDC-8020R

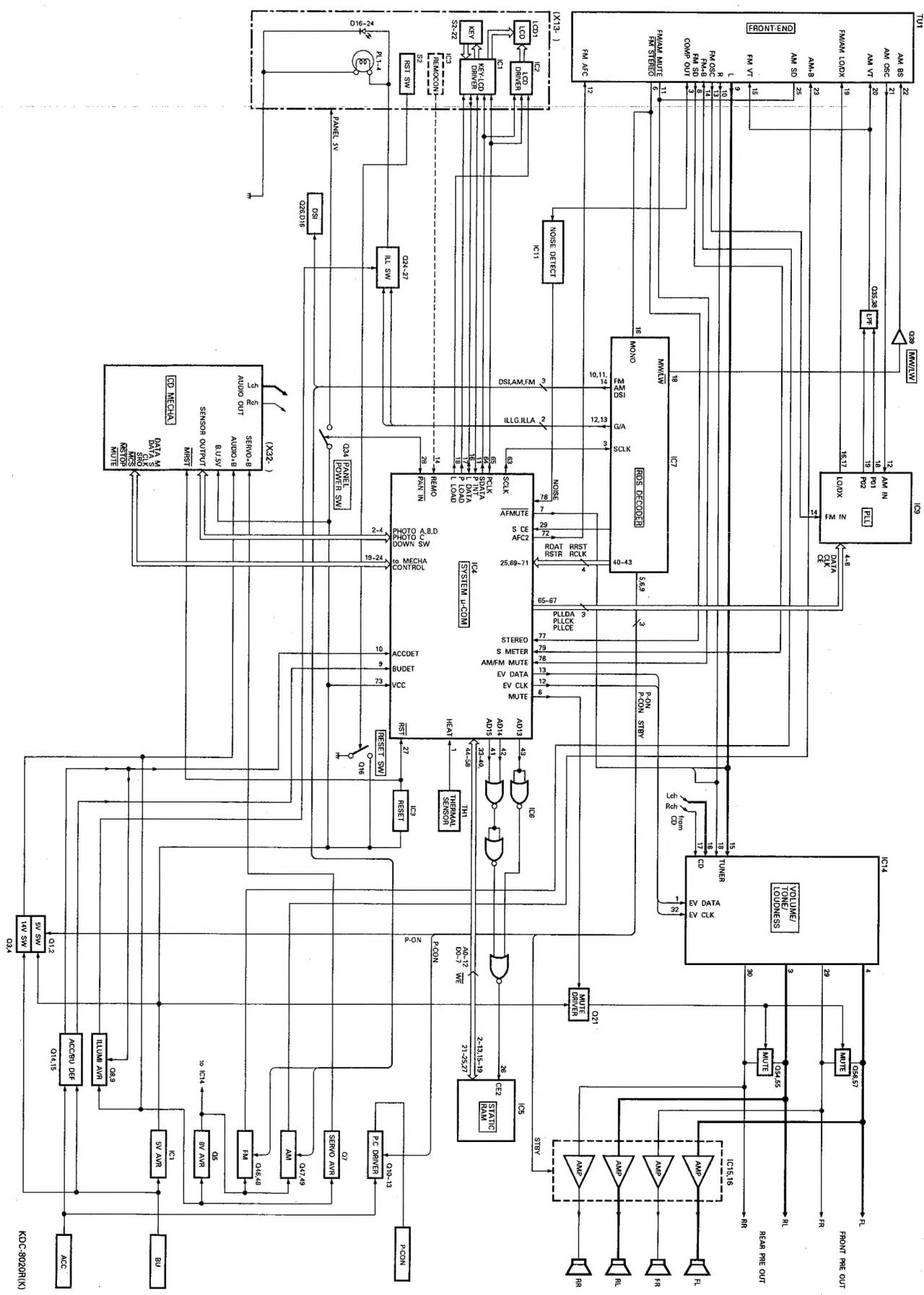
TROUBLESHOOTING GUIDE

Often, what appears to be a malfunction is due to user error. Before calling for service please consult the following table.

| Symptom | Cause | Remedy |
|--|--|--|
| The power is not turned on. | The wiring harness fuse blows. | Check cables for shorts, then replace the fuse with one of with the same rating (shown on the case). |
| No sound or sound is low. | The volume level is minimum. | Raise the volume level. |
| | The fader or balance is set to one side. | Adjust the fader and balance. |
| | The input/output cable or wiring harness is connected incorrectly. | Connect the input/output cable or wiring harness correctly. See "Connections" (Page 42). |
| The unit does not work properly when a button is pressed. | The microcomputer malfunctions. | Press the Reset button on the front panel. |
| Sound quality is poor. (Sound distortion) | The volume level is too high. | Use the appropriate volume level. |
| | A speaker cable is pressed by a screw in the car. | Check the speaker cabling. |
| | A speaker cable is shared. | Connect the speaker output connectors to the separate speaker connectors. |
| Poor radio reception. | The car antenna is not extended. | Extend the antenna. |
| | The antenna control cable is not connected. | Connect the cable correctly. See "Connections (Page 42)" |
| When the ignition key switch is set to OFF, the memory contents disappear. | The Memory backup cable is not connected correctly. | Connect the cable correctly. See "Connections (Page 42)". |
| A Disc cannot be inserted. | Another disc has already been inserted. | Eject the previous disc before inserting another. |
| A disc is ejected immediately after being inserted. | The disc is upside down. | Insert the disc with the title side up. |
| | The disc is very dirty. | Check and, if possible, clean the disc. See "Cleaning your discs" (Page 5). |
| As disc plays, you hear skipping. | The disc is dirty or damaged. | Check and, if possible, clean the disc. See "Cleaning your discs" (Page 5). |
| Sound quality is poor. | The recording of the disc is poor. | Try playing another disc. If the sound is good, the fault was with the original disc. |
| | The disc is dirty or damaged. | Check and, if possible, clean the disc. See "Cleaning your discs" (Page 5). |
| The specified disc is not played. | The player is set to RANDOM PLAY. | Turn off RANDOM PLAY. |

KDC-8020R

BLOCK DIAGRAM



KDC-8020R

CIRCUIT DESCRIPTION

SWITCH UNIT (X13-8662-70)

| Ref. No. | Device | Use and Function | Operation and Condition |
|----------|-------------------------|----------------------------------|--|
| IC1 | MSM6606GS-VK | LCD drive with key scan function | Drive the LCD and key scan |
| IC2 | MSM6544GS | LCD drive | Drive the LCD |
| IC3 | RS-21 | Remote control light sensor | Receive remote control light |
| Q1 | XDC124EK or DTC124EK | Remote control light sensor | Switches the remote control light sensor |
| Q2 | DTA114EK | Power SW | Power ON/OFF |

ELECTRIC UNIT (X25-7232-70)

| Ref. No. | Device | Use and Function | Operation and Condition |
|----------|-------------------------|---------------------|--|
| IC1 | M5278D05 | 5 V AVR | 5 V Power supply. |
| IC2 | M5237ML | AVR driver | 8 V AVR. |
| IC3 | S-80740AN-D4 | Reset IC | |
| IC4 | M38067MCD 155FP | System μ-COM | |
| IC5 | LC3564QM-10 | S-RAM | Memory of RDS data such as AF list. |
| IC6 | TC74HC02AF | HC-MOS (NOR) | Control for S-RAM (IC5). |
| IC7 | KK202F | RDS decoder | RDS decoder. |
| IC8 | SAA6579T | RDS demodulator | |
| IC9 | LM7001M | PLL IC | PLL for FM/AM tuner (TU1). |
| IC10 | TC4W66F | C-MOS analog switch | Switches LPF time constant during FM seek. |
| IC11 | NJM4565MD | Noise detect | |
| IC12 | NJM4565MD | RDS circuit | Composite signal buffer |
| IC14 | TEA6320T | Electronic volume | |
| IC15, 16 | AN7190K | Power amplifier | |
| Q1 | DTC124EK or XDC124EK | 5 V SW | Turns Q2 ON/OFF |
| Q2 | 2SB1277 | 5 V SW | Interlocked with μ-COM power ON. |
| Q3 | DTC124EK or XDC124EK | 14.4 V SW | Turns Q4 ON/OFF |
| Q4 | 2SA1428 | 14.4 V SW | Interlocked with μ-COM power ON. |
| Q5 | 2SB1565F (E, F) | AVR | 8 V output |
| Q7 | 2SD2396F40 | Servo +B AVR | Servo power supply, 7.6 V output. |
| Q8 | 2SB1565F (E, F) | Illumination AVR | Illumination power supply, 10.5 V output. |
| Q9 | 2SC2412K | Illumination AVR | Illumination power supply, 10.5 V output. |
| Q10 | 2SB1277 | P-CON | P-CON driver |
| Q11 | 2SA1037K | P-CON | P-CON protection |
| Q12 | DTA124EK or XDA124EK | P-CON | P-CON protection |
| Q13 | DTC124EK or XDC124EK | P-CON ON/OFF | |
| Q14 | DTC124EK or XDC124EK | BU detector | Collector goes "L" when BU voltage is connected. |
| Q15 | 2SC2412K | Acc detector | Collector goes "L" when Acc is ON. |

KDC-8020R

CIRCUIT DESCRIPTION

ELECTRIC UNIT (X25-7232-70)

| Ref. No. | Device | Use and Function | Operation and Condition |
|----------|-------------------------|----------------------|--|
| Q16 | DTC144EK or XDC144EK | Reset SW | |
| Q20 | DTC124EK or XDC124EK | Mute drive buffer | Muting driver receiving instructions from system controller. |
| Q21 | 2SA1037K | Mute drive buffer | Muting driver receiving instructions from system controller. |
| Q22 | DTA124EK or XDA124EK | | |
| Q23 | DTA124EK or XDA124EK | Power amp standby | Turns ON/OFF standby part of power IC. (IC15, 16) |
| Q24 | 2SB1326 | Illumination SW | Switches between Green/Amber |
| Q25 | DTC124EK or XDC124EK | Illumination SW | Switches between Green/Amber |
| Q26 | 2SB1326 | Illumination SW | Switches between Green/Amber |
| Q27 | DTC124EK or XDC124EK | Illumination SW | Switches between Green/Amber |
| Q28 | DTA124EK or XDA124EK | Power control buffer | 5 V SW and 14.4 V SW (Q1 and Q3 ON/OFF) |
| Q29 | DTC144EK or XDC144EK | DSI driver buffer | DSI control |
| Q30 | DTC124EK or XDC124EK | RDS IC Power control | |
| Q31 | 2SA1362 (Y) | RDS IC Power control | |
| Q32, 33 | DTC144EK or XDC144EK | AM AGC | |
| Q34 | 2SA1362 (Y) | Panel power SW | |
| Q35 | 2SK536 | FM LPF | |
| Q36 | DTC144EK or XDC144EK | LPF SW control | |
| Q37 | 2SA1037K | | |
| Q38 | 2SK536 | AM LPF | |
| Q39 | DTC144EK or XDC144EK | AM band SW (LW/MW) | |
| Q40 | 2SC2412K | Noise detect | |
| Q41 | 2SC2412K | FM SD meter buffer | Emitter-follower |
| Q42 | DTC144EK or XDC144EK | FM mono SW | |
| Q43 | 2SA1037K | FM SD output buffer | |
| Q44 | DTC114TK | Noise detect | |
| Q45 | DTA124EK or XDA124EK | Noise detect | |
| Q46 | 2SB1277 | FM+B SW | |
| Q47 | 2SB1277 | AM+B SW | |
| Q48 | DTC124EK or XDC124EK | FM+B SW | Turns Q46 ON/OFF |

KDC-8020R

CIRCUIT DESCRIPTION

ELECTRIC UNIT (X25-7232-70)

| Ref. No. | Device | Use and Function | Operation and Condition |
|----------|-------------------------|------------------|-------------------------|
| Q49 | DTC124EK or XDC124EK | AM+B SW | Turns Q47 ON/OFF |
| Q50 | DTA124EK or XDA124EK | AM AGC/FM AFC SW | |
| Q51 | DTA124EK or XDA124EK | LO/DX SW | |
| Q54~57 | 2SD2114K | Muting | Audio muting |

CD Player Unit (X32-4010-00)

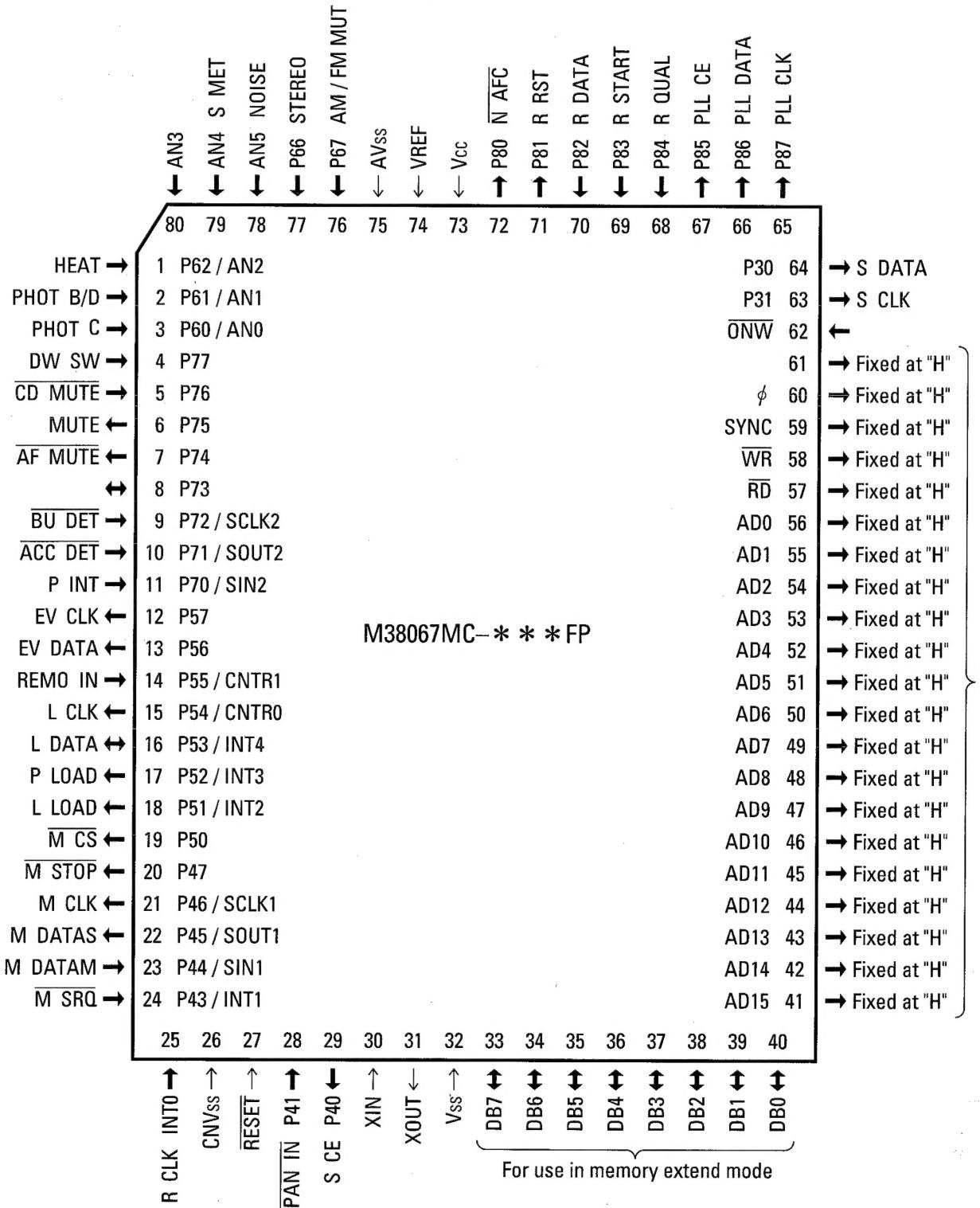
| Device | Components | Purpose, Function | Operation, Condition, Compatibility |
|--------|-----------------|---------------------------------|--|
| IC1 | AN8806SB | 3-beam head amp IC | Generation of servo error signals (focusing error, tracking error) based on the signals read from the APC circuit and pickup, detection of dropout, antishock, track crossing and off track signals. |
| IC2 | MN662720RB | CD signal processor LSI | Focusing, tracking, sled and spindle servo processing, automatic adjustments (focusing gain, tracking gain, offset, balance). Digital signal processing (DSL, PLL, subcode data processing, CIRC error correction, audio data interpolation). |
| IC3 | SM5873S | D/A converter | 8 x oversampling digital filter and analog post LPF are built in. |
| IC4 | NJM4565MD | Active L.P.F. | |
| IC5 | TA78L05F | 3-pin regulator | Generation of analog 5 V. |
| IC6 | 78002BGC603-AB8 | Mechanism controller μ -COM | |
| IC7 | BA6795FP | BTL driver | Focusing and tracking coils, sled, spindle and loading motor drive. |
| IC8 | NJM4565MD | TE low-frequency boost | |
| Q1 | 2SA1362 | APC | LD driver. |
| Q2 | DTC124EK | IC3 reset | |
| Q3 | DTC124EK | X1 oscillation stop | |
| Q5 | 2SA1362 | 5 V SW | |
| Q6 | 2SA1037K | Thermal shutdown SW | Transmission to IC6 (Mechanism controller μ -COM) in case high temperature is detected. |

KDC-8020R

CIRCUIT DESCRIPTION

IC4: M38067MCD155FP (X25-7232-70)
SYSTEM MICROCOMPUTER

1. Terminal pin layout



CIRCUIT DESCRIPTION

IC4: M38067MCD155FP (X25-7232-70)

2. Microcomputer terminal description

| Pin No. | Pin Name | I/O | Signal Name | Function | Port | Active Status | Power OFF |
|---------|----------|-----|-------------|---|------|---------------------|-----------|
| 1 | AN2 | I | HEAT | Temperature rise detection. | | HIGH TEMPERATURE | |
| 2 | AN1 | I | PHOT B/D | Photosensors B/D. | | | |
| 3 | AN0 | I | PHOT C | Photosensor C. | | | |
| 4 | P77 | I | DW SW | CD mechanism down switch. | | | |
| 5 | P76 | I | CD MUTE | Muting output request from CD Mechanism μ -COM. | | | |
| 6 | P75 | O | MUTE | Muting. | | | |
| 7 | P74 | O | AF MUTE | Muting (used during AF search). | | | |
| 8 | P73 | I | | | | | |
| 9 | P72 | I | BU DET | Back-up power. | | BACK UP OFF | |
| 10 | P71 | I | ACC DET | Acc power. | | ACC OFF | |
| 11 | P70 | I | P INT | Completion of a key scan cycle of LCD driver (IC1 in X13-). | | | |
| 12 | P57 | O | EV CLK | Clock for electronic volume TEA6320T (IC14) | | | |
| 13 | P56 | O | EV DATA | Data for electronic volume TEA6320T (IC14) | | FM STATION DETECTED | |
| 14 | CNTR1 | I | REMO IN | Remote control receiving signal. | | | |
| 15 | P54 | O | L CLK | LCD DRIVER CLOCK | | | |
| 16 | P53 | I/O | L DATA | LCD DRIVER DATA | | | |
| 17 | P52 | O | P LOAD | LCD DRIVER (IC1 in X13-) LATCH | | | |
| 18 | P51 | O | L LOAD | LCD DRIVER (IC2 in X13-) LATCH | | | |
| 19 | P50 | O | M CS | Handshake signal from System μ -COM. | | | |
| 20 | P47 | O | M STOP | Stop request for CD Mechanism μ -COM. | | | |
| 21 | SCLK1 | O | M CLK | Communications clock for CD Mechanism μ -COM. | | | |
| 22 | TXD | O | M DATA S | Data line from System μ -COM. | | | |
| 23 | RXD | I | M DATA M | Data line from CD Mechanism μ -COM. | | | |
| 24 | INT1 | I | M SRQ | Handshake signal from CD Mechanism μ -COM. | | | |
| 25 | INT0 | I | R CLK | RDS CLOCK | | | |
| 26 | CNVSS | I | CNVSS | μ -COM chip operation mode control switching. | | CNVSS=GND | |
| 27 | RESET | I | RESET | Hardware reset. | | ACTIVE "L" | |
| 28 | P41 | I | PAN IN | Panel attached/detached signal. | | PANEL ATTACHED | |
| 29 | P40 | O | S CE | G/A CHIP ENABLE | | | |
| 30 | XIN | I | XIN | Clock input. | | | |
| 31 | XOUT | O | XOUT | Clock output. | | | |
| 32 | VSS | I | VSS | Power input. | | VSS=GND | |
| 33 | P27/DB7 | I/O | DB7 | S-RAM DATA BUS 7 | | | |
| 34 | P26/DB6 | I/O | DB6 | S-RAM DATA BUS 6 | | | |
| 35 | P25/DB5 | I/O | DB5 | S-RAM DATA BUS 5 | | | |
| 36 | P24/DB4 | I/O | DB4 | S-RAM DATA BUS 4 | | | |
| 37 | P23/DB3 | I/O | DB3 | S-RAM DATA BUS 3 | | | |
| 38 | P22/DB2 | I/O | DB2 | S-RAM DATA BUS 2 | | | |
| 39 | P21/DB1 | I/O | DB1 | S-RAM DATA BUS 1 | | | |
| 40 | P20/DB0 | I/O | DB0 | S-RAM DATA BUS 0 | | | |
| 41 | P17/AD15 | O | AD15 | S-RAM ADDRESS 15 | | | |
| 42 | P16/AD14 | O | AD14 | S-RAM ADDRESS 14 | | | |
| 43 | P15/AD13 | O | AD13 | S-RAM ADDRESS 13 | | | |
| 44 | P14/AD12 | O | AD12 | S-RAM ADDRESS 12 | | | |

KDC-8020R

CIRCUIT DESCRIPTION

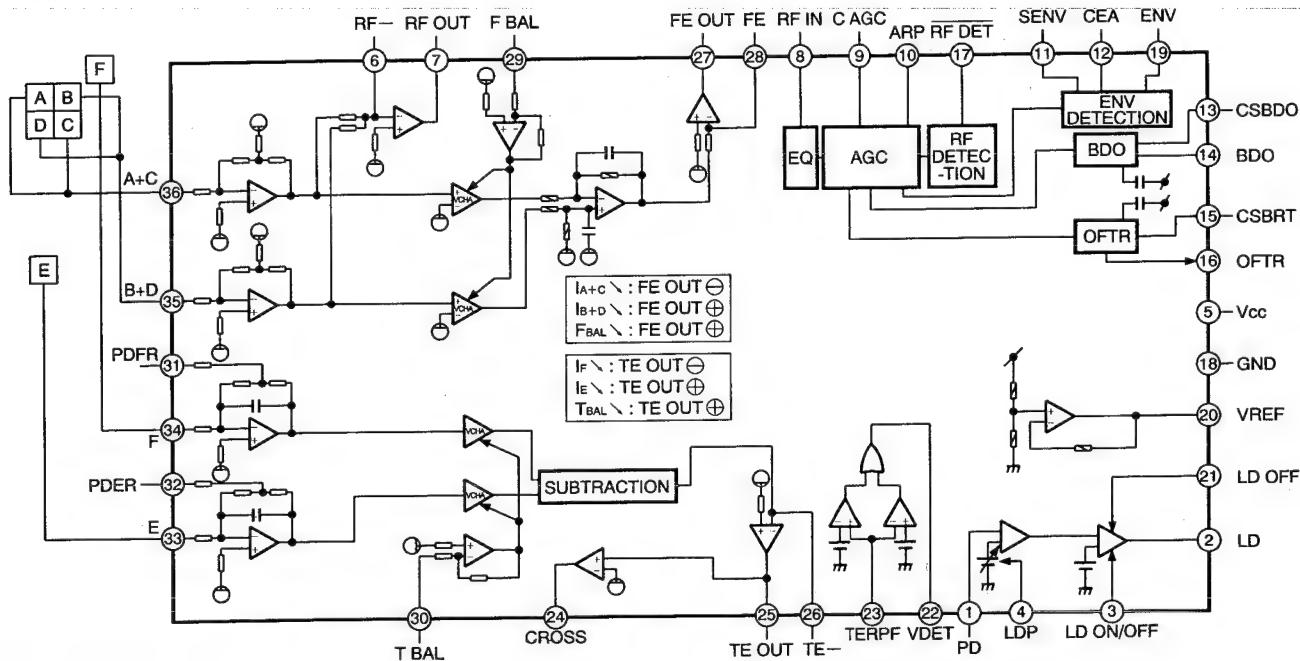
IC4: M38067MCD155FP (X25-7232-70)

| Pin No. | Pin Name | I/O | Signal Name | Function | Port Active Status | Power OFF |
|---------|--------------|-----|-------------|--|--------------------|-----------|
| 45 | P13/AD11 | O | AD11 | S-RAM ADDRESS 11 | | |
| 46 | P12/AD10 | O | AD10 | S-RAM ADDRESS 10 | | |
| 47 | P11/AD9 | O | AD9 | S-RAM ADDRESS 9 | | |
| 48 | P10/AD8 | O | AD8 | S-RAM ADDRESS 8 | | |
| 49 | P07/AD7 | O | AD7 | S-RAM ADDRESS 7 | | |
| 50 | P06/AD6 | O | AD6 | S-RAM ADDRESS 6 | | |
| 51 | P05/AD5 | O | AD5 | S-RAM ADDRESS 5 | | |
| 52 | P04/AD4 | O | AD4 | S-RAM ADDRESS 4 | | |
| 53 | P03/AD3 | O | AD3 | S-RAM ADDRESS 3 | | |
| 54 | P02/AD2 | O | AD2 | S-RAM ADDRESS 2 | | |
| 55 | P01/AD1 | O | AD1 | S-RAM ADDRESS 1 | | |
| 56 | P00/AD0 | O | AD0 | S-RAM ADDRESS 0 | | |
| 57 | P37/RD | O | RD | S-RAM READ CONTROL | | |
| 58 | P36/WR | O | WR | S-RAM WRITE CONTROL | | |
| 59 | P35/SYNC | O | SYNC | "H" output for a ø period when opcode is fetched. (Not used) | | |
| 60 | P34/ø | O | ø | Internal system clock ø output. (Not used) | | |
| 61 | P33/RESETOUT | O | "H" | "H" output permanently. (Not used) | | |
| 62 | P32/ONW | I | ONW | Delay of internal system clock ø by half period. (Not used) | | |
| 63 | P31 | O | S CLK | G/A IC CLOCK | | |
| 64 | P30 | O | S DATA | G/A IC DATA | | |
| 65 | P87 | O | PLL CLK | PLL LM7001M (IC9) CLOCK | | |
| 66 | P86 | O | PLL DATA | PLL LM7001M (IC9) DATA | | |
| 67 | P85 | O | PLL CE | PLL LM7001M (IC9) CHIP ENABLE | | |
| 68 | P84 | I | R-QUAL | RDS QUALITY | | |
| 69 | P83 | I | R START | RDS DATA START BIT | | |
| 70 | P82 | I | R DATA | RDS DATA | | |
| 71 | P81 | O | R RST | Sync µ-COM reset signal. | | |
| 72 | P80 | O | N AFC | RDS NOISE AFC | | |
| 73 | VCC | I | VCC | Power input. | VCC=+5 V | |
| 74 | VREF | I | VREF | A-D converter reference voltage. Analog maximum voltage. | VREF=+5 V | |
| 75 | AVSS | I | AVSS | A-D converter analog power input. Analog minimum voltage. | AVSS=GND | |
| 76 | P67 | I | AM/FM MUT | AM SD/FM band muting. | STATION DETECTED | |
| 77 | P66 | I | STEREO | FM STEREO | STEREO | |
| 78 | AN5 | I | NOISE | FM noise | | |
| 79 | AN4 | I | S MET | FM S-METER | | |
| 80 | AN3 | I | PHOT A | Photosensor A | | |

CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00) 3-BEAM HEAD AMPLIFIER IC

Block diagram



Terminal description

| Pin No. | Symbol | I/O | Function |
|---------|-----------|-----|---|
| 1 | PD | I | APC Amp. input pin |
| 2 | LD | O | APC Amp. output pin |
| 3 | LD ON/OFF | I | APC ON/OFF control pin |
| 4 | LDP | I | APC reference voltage pin |
| 5 | Vcc | - | Power supply pin |
| 6 | RF- | I | RF Amp inverted input pin |
| 7 | RF OUT | O | RF Amp output pin |
| 8 | RF IN | I | AGC input pin |
| 9 | C AGC | | AGC loop filter connection pin |
| 10 | ARP | O | AGC output pin |
| 11 | SENV | | RF detection capacitor connection pin |
| 12 | CEA | | HPF-Amp capacitor connection pin |
| 13 | CSBDO | | RF darker side envelope detection capacitor connection pin |
| 14 | BDO | O | BDO output pin |
| 15 | OSBRT | | RF lighter side envelope detection capacitor connection pin |
| 16 | OFTR | O | OFTR output pin |
| 17 | RF DET | O | RFDET output pin |
| 18 | GND | - | Ground pin |
| 19 | ENV | O | 3TENV output pin |
| 20 | VREF | O | VREF output pin |
| 21 | LD OFF | I | APC OFF control pin |

KDC-8020R

CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|---|
| 22 | VDET | O | VDET output pin |
| 23 | TERPF | I | VDET input pin |
| 24 | CROSS | O | CROSS output pin |
| 25 | TE OUT | O | TE.Amp output pin |
| 26 | TE- | O | TE.Amp inverted input pin |
| 27 | FE OUT | O | FE.Amp output pin |
| 28 | FE | I | FE.Amp inverted input pin |
| 29 | F BAL | I | F.BAL control pin |
| 30 | T BAL | I | T.BAL control pin |
| 31 | PDFR | | I-V Amp converting resistance alignment pin |
| 32 | PDER | | I-V Amp converting resistance alignment pin |
| 33 | E | I | I-V Amp input pin |
| 34 | F | I | I-V Amp input pin |
| 35 | B+D | I | I-V Amp input pin |
| 36 | A+C | I | I-V Amp input pin |

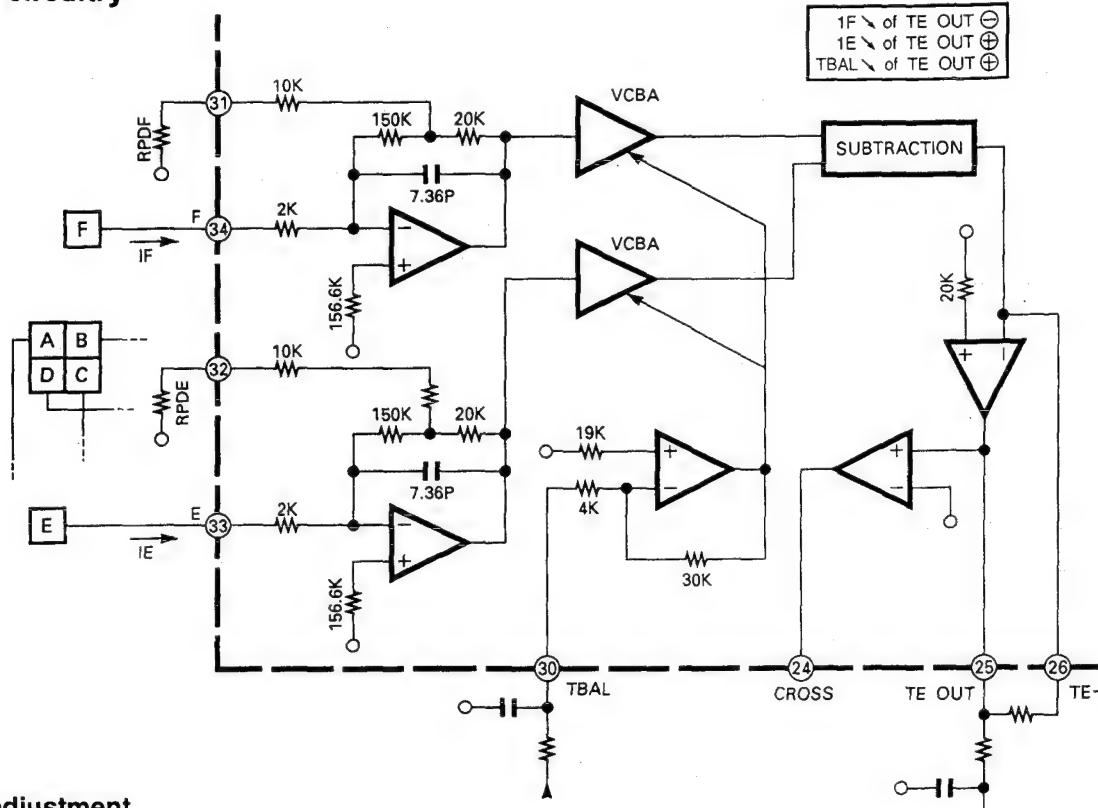
CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

3-BEAM HEAD AMPLIFIER IC

(Note: The values mentioned below are the design values when supply voltage $V_{cc} = 5$ V.)

1. Tracking circuitry



(1) IV amp adjustment

The conversion resistance value of the IV amps can be obtained with the following calculation.

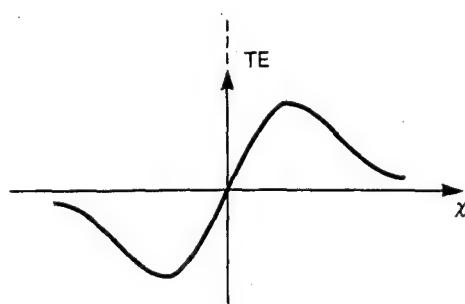
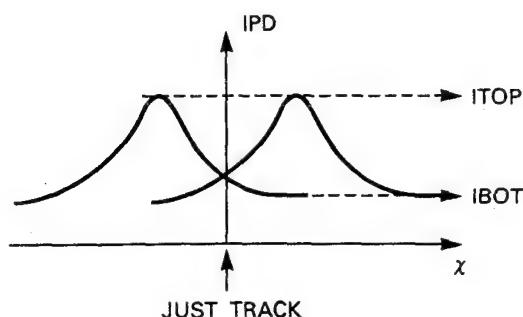
$$Z_{IV} = 150K + 20K + \frac{150K \times 20K}{10K + R_{PDF(E)}} \quad \dots \dots \dots \quad ①$$

When $R_{PDF(E)} = 0$, that is, when pins ③① and ③② are equal to V_{REF} , the maximum value of Z_{IV} will be as follows:

$$Z_{IV} = 150K + 20K + \frac{150K \times 20K}{10K} = 470K \text{ ohms}$$

Assuming that tracking PD elements F and E output I_F and I_E respectively, these currents have the patterns as shown in the left and their maximum input values are approx. $2.2 \mu\text{A}$. If the maximum input current exceeds this value, resistances should be attached to pins ③① and ③②. The value of these resistances can be obtained as follows:

$$R_{PDE} = \frac{150K \times 20K}{\frac{1.0}{I_{MAX}} - (150K + 20K)} - 10K\Omega$$



KDC-8020R

CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

Each IV converter amp incorporates a filter. When pins ⑳ and ㉑ are connected directly to V_{REF} , the cut-off frequency f_c of the filter will be as follows:

$$f_c = \frac{1}{2\pi \cdot 470K \cdot 7.36pF} \doteq \text{approx. } 46 \text{ kHz}$$

(2) Tracking balance

As shown in the block diagram on the previous page (tracking circuitry), a resistor and capacitor are connected to pin ⑳ and the balance is adjusted from the resistor. The signal ratio of VCBA can be varied from approx. 0.14 up to 7 with a variable input of ± 1 [V] with respect to the reference voltage V_{REF} . The polarity is set so that TEOUT rises when the variable input changes from $+1$ [V] to -1 [V]. When the variable input is equal to V_{REF} , the VCBA signal ratio is equal to 1.

(3) Tracking error amp

The tracking error outputs F and E are output at pin ㉕. (To set the amplitude, connect a resistor across pins ㉕ and ㉕ so that TEOUT from pin ㉕ is 1.67 Vp-p.)

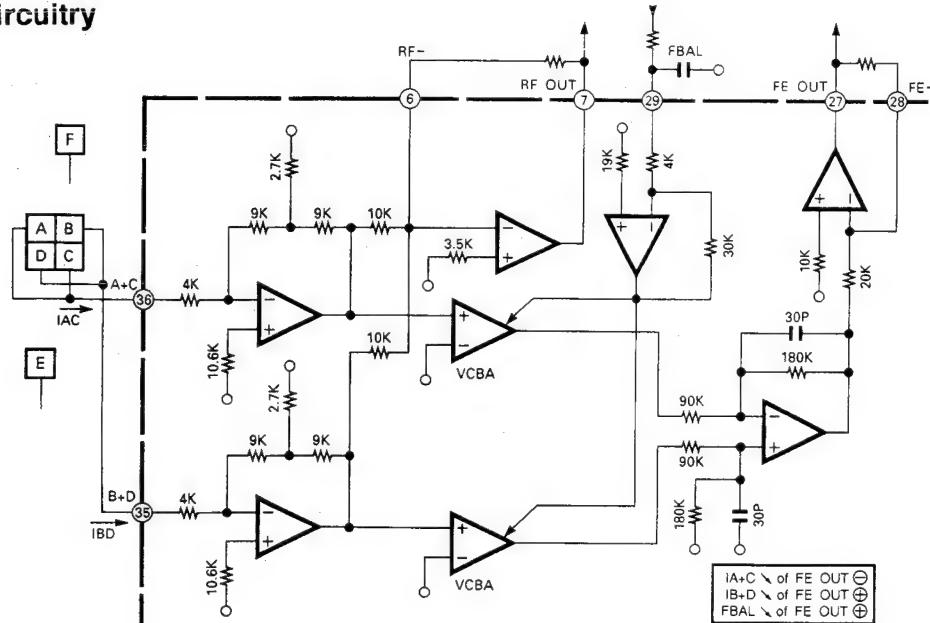
This output has an absorption current of approx. 300 μ A, so care is required at the time of external connection.

(4) Cross-comparator

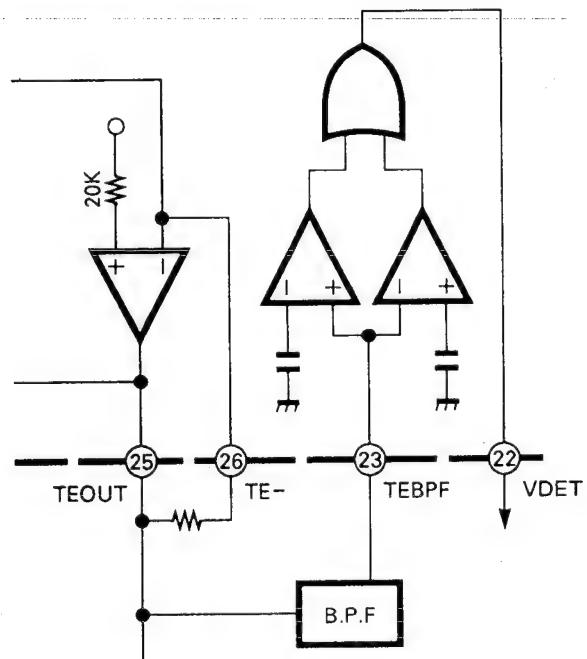
Based on the TEOUT signal at pin ㉕, the cross-comparator output signal is output at pin ㉔.

(Note) This comparator does not include hysteresis.

3. Focusing circuitry



2. Vibration detector



This circuit is composed of a wind comparator of approx. ± 75 mV. It detects abnormal vibration component of tracking error and outputs "High" at VDET of pin ㉒.

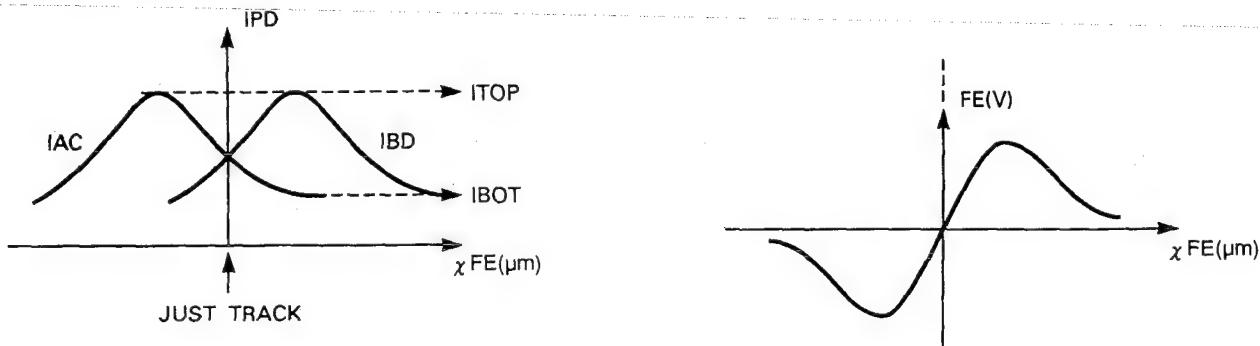
The input signal is obtained from TEOUT at pin ㉕ which passes through the band-pass filter (B.P.F.) and input to pin ㉓.

KDC-8020R

CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

(1) Focusing error



The PD output currents have the patterns as shown on the above. Similarly to the case of tracking error, the knowledge on their maximum values including the output current dispersion is required.

After passing through the balance amp (VCBA), the signals are input to the differential amp with a cutoff frequency of 30 kHz, sent through the gain setting amp and output at FEO_{UT} of pin 27. To set the amplitude, connect a resistor across pins 28 and 27 so that FEO_{UT} from pin 27 is 1.67 Vp-p.

(2) Focusing balance

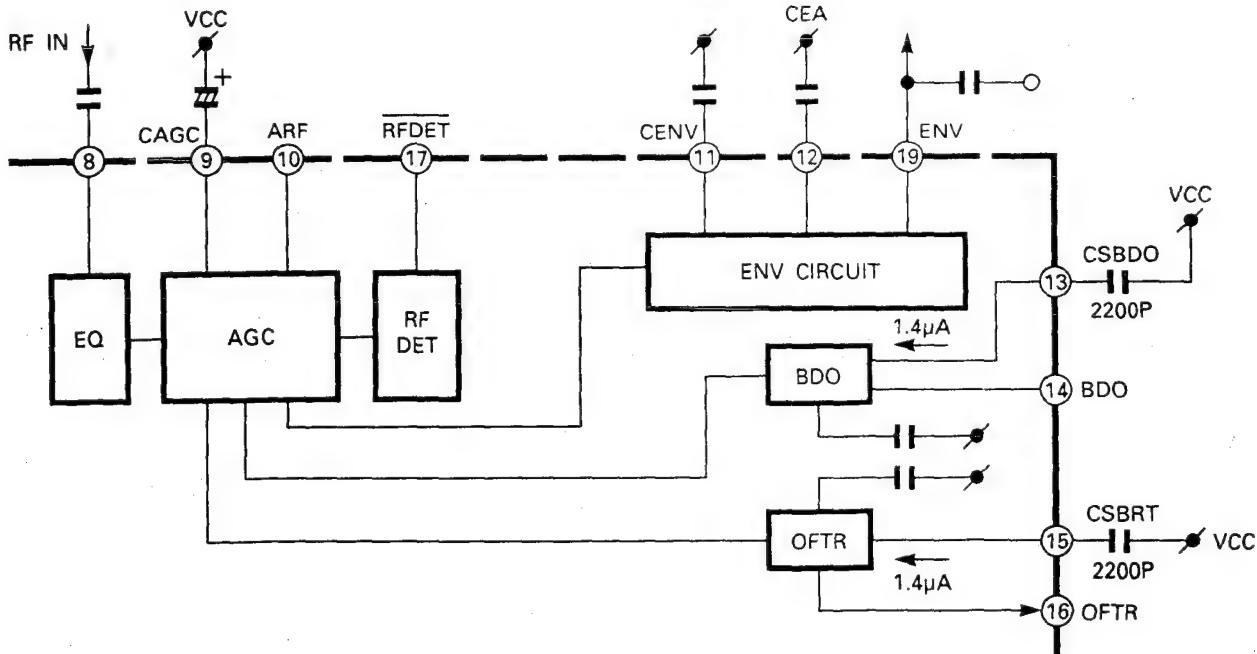
As shown in the block diagram on the previous page (focusing circuitry), a resistor and capacitor are connected to pin 29 and the balance is adjusted from the

resistor. The signal ratio of VCBA can be varied from approx. 0.14 up to 7 with a variable input of ± 1 [V] with respect to the reference voltage V_{REF} . The polarity is set so that FEO_{UT} rises when the variable input changes from +1 [V] to -1 [V]. When the variable input is equal to V_{REF} , the VCBA signal ratio is equal to 1.

(3) RF amp

The signals input from the PD elements passes through the IV converter amps, composed into an RF signal by the RF amp and output at RFOUT of pin⑦. (To set the gain of this amp, connect a resistor across pins ⑥ and ⑦ so that RFOUT from pin⑦ is approx. 0.5 Vp-p.)

4. RF AGC - detector circuitry

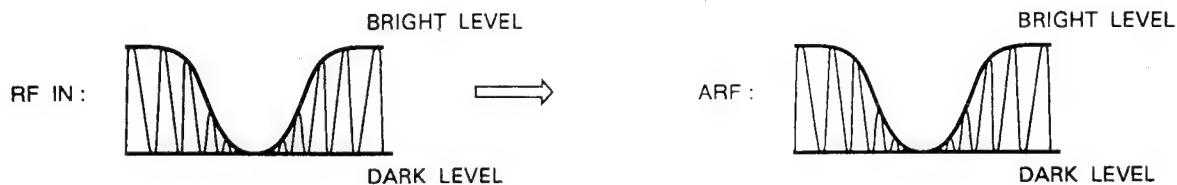


KDC-8020R

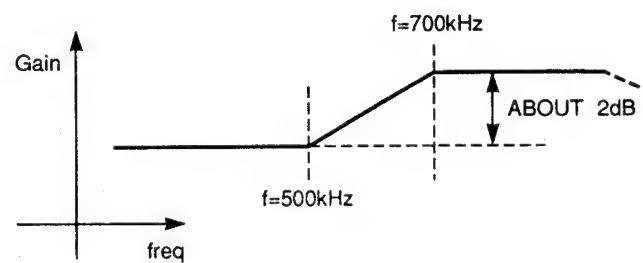
CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

(1) RF AGC



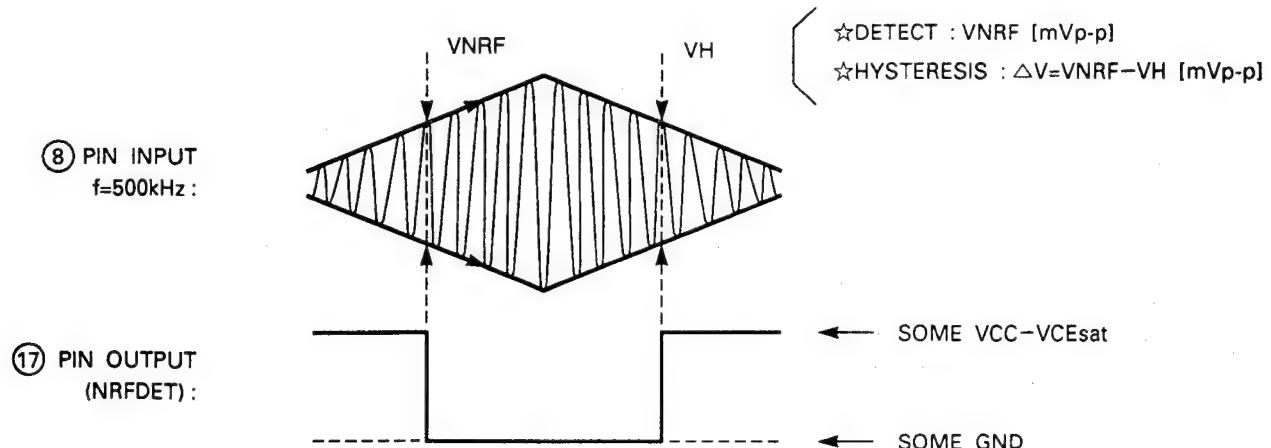
The RF signal from pin ⑦ is input to pin ⑧ via a capacitor. After the gain has been controlled, it is output at pin 10. The input signal level is from approx. 250 mVp-p or 500 mVp-p (TYP.) to 1.0 Vp-p, and the output level is approx. 1.0 Vp-p (when input signal $f = 500$ kHz). Pin ⑨ is designed to connect the capacitor for the AGC loop filter, and it is recommended to connect a capacitor of around 1 μ F between the pin and Vcc. The internal impedance of this terminal is approx. 100 k Ω . The input impedance of the EQ connected to pin ⑧ is approx. 27.9 k Ω and the EQ characteristic is as shown in the next figure (which shows an approximate characteristic based on calculations).



The EQ characteristic shown is the characteristic when the gain is almost maximum.

(2) RF detection (NRFDET)

This circuit detects the amplitude of the RF signal input through pin ⑧. The input RF signal passes through the high-pass filter with an $f_c = 50$ kHz before being detected. The detection level is approx. 100 mV when the input frequency is 500 kHz, and there is a hysteresis of approx. 50 mV.



KDC-8020R

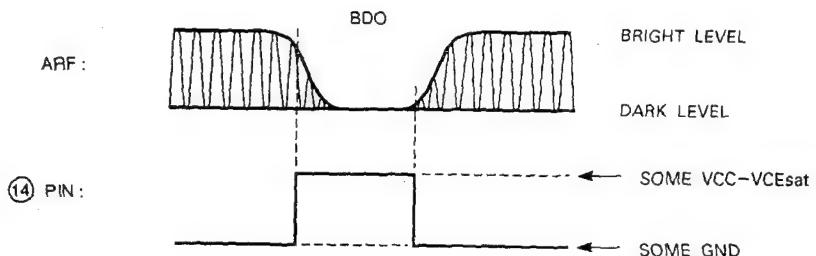
CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

(3) BDO detection

The BDO is detected by means of high-speed detection (built in) and low-speed detection of the RF signal during BDO. The low-speed detection requires a capacitor between pin ⑯ and Vcc. The use of a larger-capacity capacitor detects large RF dropout and the

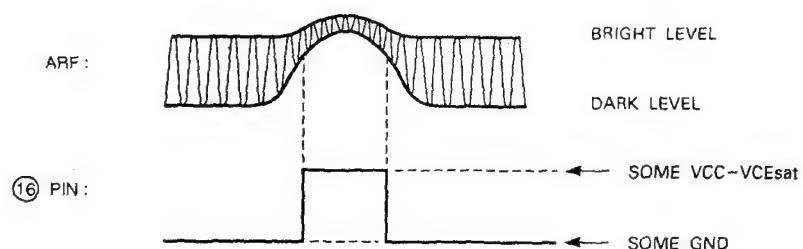
use of a shorter-capacity capacitor detects small RF dropouts. The detection current is approx. $1.4 \mu\text{A}$ (TYP.), and the recommended capacity is 2200 pF . With this condition, the BDO is detected when the RF amplitude drops by approx. 25%.



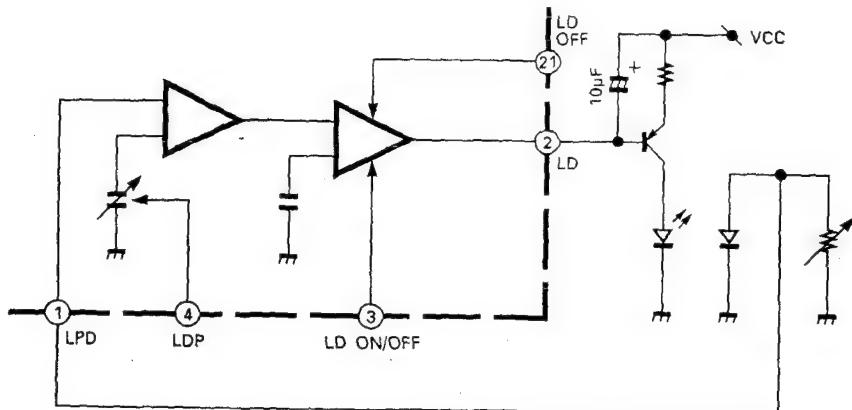
(4) OFTR detection

Similarly to BDO detection, The OFTR is also detected with high-speed detection (built in) and low-speed detection. The low-speed detection requires a capacitor between pin ⑯ and Vcc. The detection current is approx. $1.4 \mu\text{A}$ (TYP.). The relationship with the

capacity is similar to the VDO detection. The recommended capacity is also 2200 pF . With this condition, the OFTR is detected when the RF amplitude drops by approx. 65%.



5. APC



The LD reference voltage can be switched by setting pin ④ open or connecting it to GND. The reference voltage is approx. 170 mV when pin ④ is open, and approx. 140 mV when pin ④ is connected to GND.

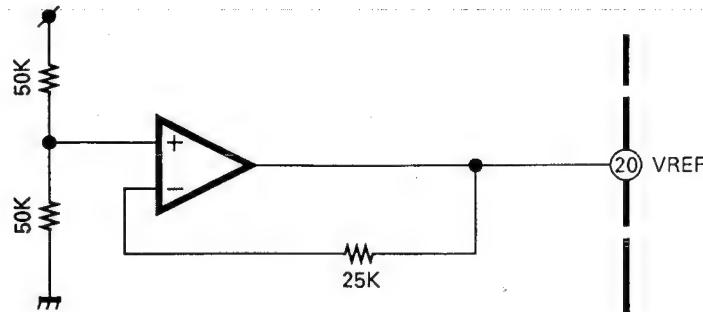
Pins ③ and ② are control terminals for turning the LD on and off. The LED goes on when "High" is input to pin ③ and goes off when "High" is input to pin ②.

KDC-8020R

CIRCUIT DESCRIPTION

IC1: AN8806SB (X32-4010-00)

6. Reference power

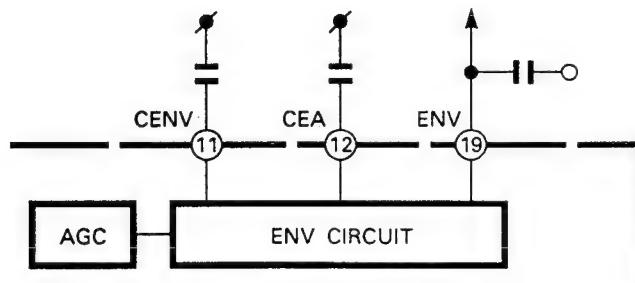


The reference power supply for servo operations is built in.

(Pin ⑳ $V_{cc} \times (1/2)$ [V] Current capacity
Sink & source approx. 3 mA)

This power supply requires a capacitor for prevention of oscillation. To pin ⑳, it is recommended to connect a capacitor of 1 to 10 μ F.

7. Envelope detector



This block extracts the fluctuation of the 3T component of RF signal that is required for focusing balance adjustment.

Pins ⑪ and ⑫ are used to connect capacitors which form a part of the filter for extracting the signal fluctuation. It is recommended to connect a capacitor of approx. 100 pF to pin ⑪ and a capacitor of approx. 0.027 μ F to pin ⑫. The input impedance of pin ⑫ is approx. 8.5 k Ω .

Pin ⑯ is the envelope output terminal. This terminal requires external connection of a capacitor which forms the part of the filter, and it is recommended to connect a capacitor of approx. 0.027 μ F between V_{REF} . The output impedance of pin ⑯ is approx. 8.5 k Ω .

CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00) CD SIGNAL PROCESSOR LSI

1. Type

CD (Compact Disc) signal processor LSI.

2. Summary

The MN662720RB is a CD signal processor LSI incorporating the optical servo (focusing, tracking and traverse servo) processing functions, digital signal processing functions (EFM demodulation, error correction) and spindle motor digital servo processing function for a CD player in a single chip.

3. Features and functions

(Optical servos)

- Focusing, tracking and traverse servo.
- Automatic adjustment functions (FO/TR gain, FO/TR offset, FO/TR balance)
- Built-in DC converter for drive voltage output.
- Built-in drop-out countermeasure.
- Anti-shock function compatibility.
- Built-in track cross counter.
- Linear motor and screw-feed traverse compatibility.
- 3-beam and 1-beam compatibility.

(Digital signal processing)

- Built-in DSL and PLL.
- Frame sync detection/protection/interpolation.
- Subcode data processing
 - Q data CRC check,
 - Q data register built in.
- CIRC error correction
 - C1 decoder: Double error correction
 - C2 decoder: Triple error correction
 - Built-in deinterleaving 16K RAM
- Audio data interpolation
 - Average interpolation, previous value hold,
 - soft muting,
 - digital attenuation (256 levels).
- Soft attenuation (256 levels).
- Audio data peak level detection function.
- Auto cue detection.
- Digital audio interface (EIAJ format).
- Audio data serial interface.

(Spindle motor servo)

- CLV digital servo.

(Other)

- Built-in playback pitch control function ($\pm 13\%$)
- Double-speed playback.

4. Appearance

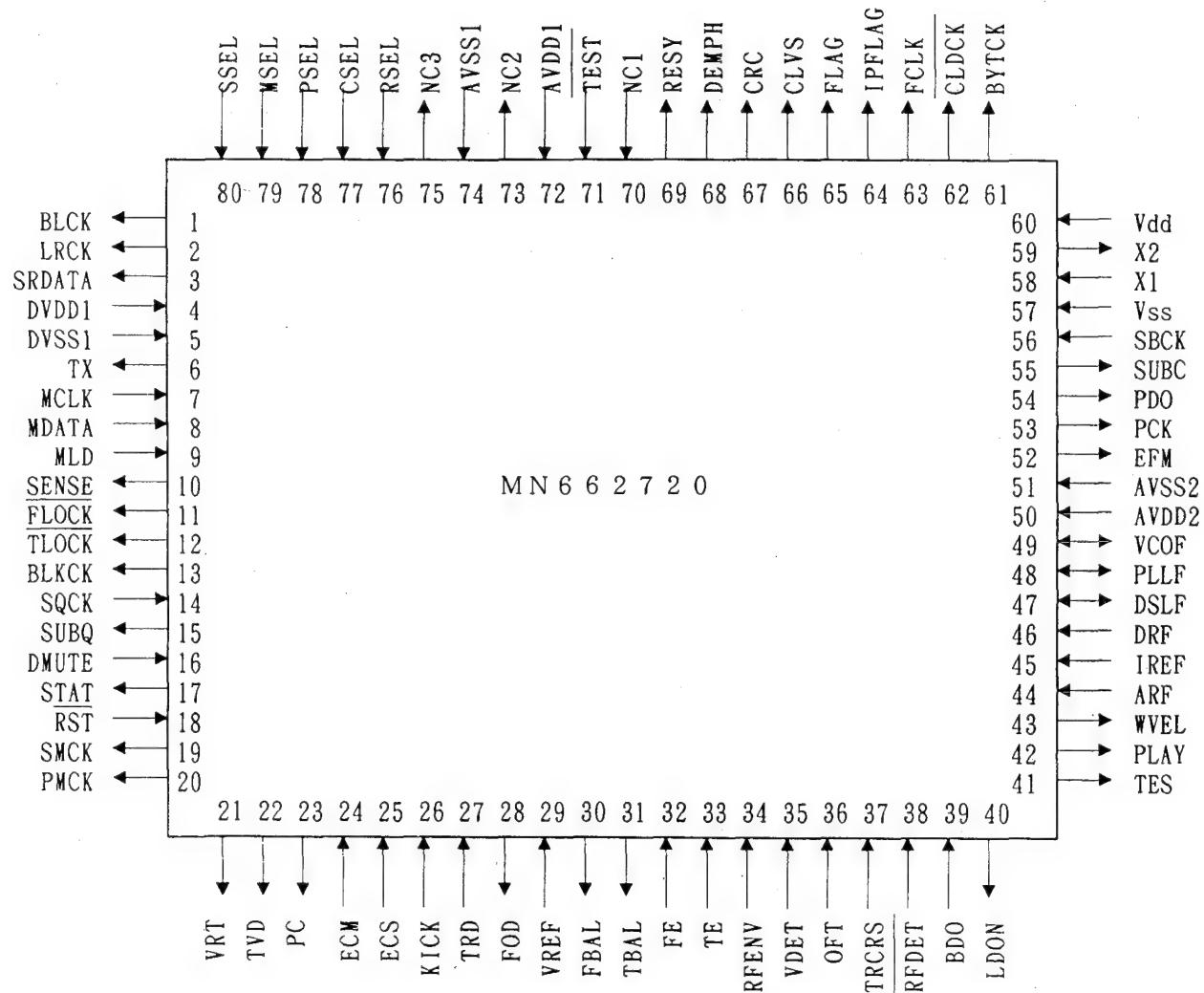
80-pin, flat package (QFS080-P-1414).

KDC-8020R

CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

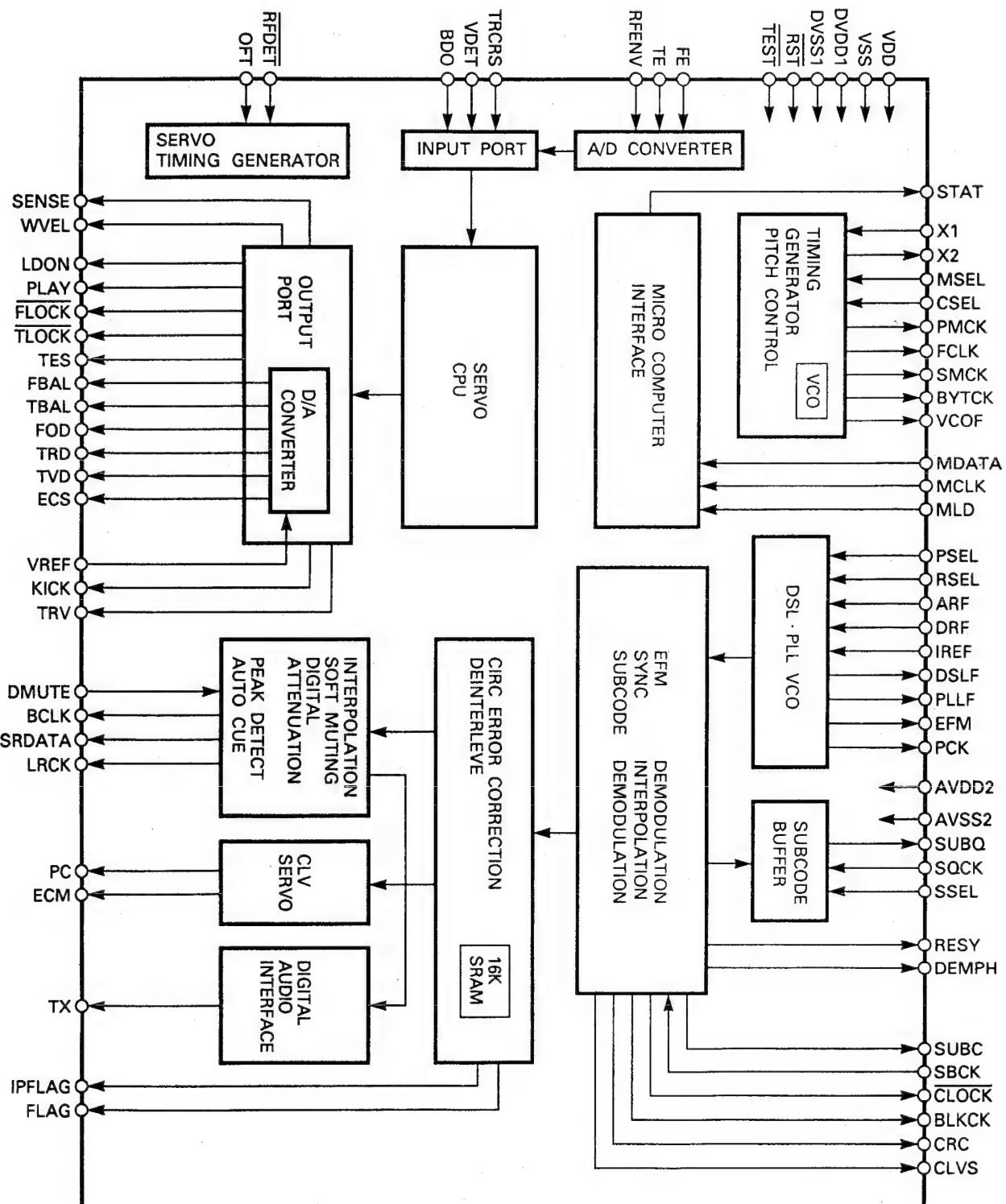
5. Pin layout



CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

6. Block diagram



KDC-8020R

CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

7. Terminal description

| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|--|
| 1 | BCLK | O | Bit clock output for SR data. |
| 2 | LRCK | O | L/R identification signal output. |
| 3 | SRDATA | O | Serial data output. |
| 4 | DVDD1 | I | Digital circuit power supply. |
| 5 | DVSS1 | I | Digital circuit GND. |
| 6 | TX | O | Digital audio interface output signal. |
| 7 | MCLK | I | Microcomputer command clock signal input. (Data is latched at the positive-going edges.) |
| 8 | MDATA | I | Microcomputer command data input. |
| 9 | MLD | I | Microcomputer command load signal input. (L: Load) |
| 10 | SENSE | O | Sense signal output (OFT, FESL, NACEND, NAJEND, POSAD, SFG). |
| 11 | /FLOCK | O | Focusing servo lock signal. (L: Locked) |
| 12 | /TLOCK | O | Tracking servo lock signal. (L: Locked) |
| 13 | BLKCK | O | Subcode block clock signal. (fBLKCK=75Hz) |
| 14 | SQCK | I | External clock input for subcode Q register. |
| 15 | SUBQ | O | Subcode Q code output. |
| 16 | DMUTE | I | Muting input. (H: Muting) |
| 17 | STAT | O | Status signal output (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK). |
| 18 | /RST | I | Reset input. (L: Reset) |
| 19 | SMCK | O | When MSEL=H, 8.4672 MHz clock signal output. When MSEL=L, 4.2336 MHz clock signal output. |
| 20 | PMCK | O | 88.2 kHz clock signal output. |
| 21 | TRV | O | Traverse forced feed output. |
| 22 | TVD | O | Traverse drive output. |
| 23 | PC | O | Spindle motor ON signal. (L:ON) |
| 24 | ECM | O | Spindle motor drive signal (forced mode output), 3-state. |
| 25 | ECS | O | Spindle motor drive signal (servo error signal output). |
| 26 | KICK | O | Kick pulse output. |
| 27 | TRD | O | Tracking drive output. |
| 28 | FOD | O | Focusing drive output. |
| 29 | VREF | I | Reference voltage for DA output block (TVD, ECS, TRD, FOD, FBAL, TBAL). |
| 30 | FBAL | O | Focusing balance adjustment output. |
| 31 | TBAL | O | Tracking balance adjustment output. |
| 32 | FE | I | Focusing error signal input (analog input). |
| 33 | TE | I | Tracking error signal input (analog input). |
| 34 | RFENV | I | RF envelope signal input (analog input). |
| 35 | VDET | I | Vibration detection signal input. (H: Detected) |
| 36 | OFT | I | Off-track signal input. (H: Off-track) |
| 37 | TRCRS | I | Track crossing signal input. |
| 38 | /RFDET | I | RF detection signal input. (L: Detected) |
| 39 | BDO | I | Drop-out signal input. (H: Drop-out) |
| 40 | LDON | O | Laser ON signal output. (H: ON) |

CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|---|
| 41 | TES | O | Tracking error shunt signal output. (H:Shunt) |
| 42 | PLAY | O | Play signal output. (H: Play) |
| 43 | WVEL | O | Double-speed status signal output. |
| 44 | ARF | I | RF signal input. |
| 45 | IREF | I | Reference current input terminal. |
| 46 | DRF | I | DSL bias terminal. |
| 47 | DSLF | I/O | DSL loop filter terminal. |
| 48 | PLLF | I/O | PLL loop filter terminal. |
| 49 | VCOF | I/O | VCO loop filter terminal. |
| 50 | AVDD2 | I | Analog circuit power supply (for DSL, PLL and DA output blocks). |
| 51 | AVSS2 | I | Analog circuit GND (for DSL, PLL and DA output blocks). |
| 52 | EFM | O | EFM signal output. |
| 53 | PCK | O | PLL extraction clock output. (fPCK=4.321MHz) |
| 54 | PDO | O | Output terminal of phase comparison signal between EFM signal and PCK signal. |
| 55 | SUBC | O | Subcode serial output data output. |
| 56 | SBCK | I | Subcode serial output clock input. |
| 57 | VSS | I | Oscillator circuit GND. |
| 58 | X1 | I | X'tal oscillator input terminal. f = 16.9344 MHz or 33.8688 MHz. |
| 59 | X2 | O | X'tal oscillator output terminal. (33.8688 MHz is used for double-speed playback.) |
| 60 | VDD | I | Oscillator circuit power supply. |
| 61 | BYTCK | O | Byte clock output. |
| 62 | /CLDCK | O | Subcode frame clock signal output. (fCLOCK=7.35kHz) |
| 63 | FCLK | O | X'tal frame clock output. (fFCLK=7.35kHz) |
| 64 | IPFLAG | O | Interpolation flag output. (H: Interpolation) |
| 65 | FLAG | O | Flag output. |
| 66 | CLVS | O | Spindle servo phase sync status signal output. (H: CLV, L: Coarse servo) |
| 67 | CRC | O | Subcode CRC check result output. (H: OK, L: NG) |
| 68 | DEMPH | O | De-emphasis detection signal output. (H:ON) |
| 69 | RESY | O | When SSEL=H; FLAG6 output (RAM address reset generation signal in case the jitter margin of CLV servo is exceeded. L: Address reset generation.) When SSEL=L; RESY output (frame sync re-sync signal output. H: Sync, L: Out of sync.) |
| 70 | NC1 | NC | No connection (without internal connection). |
| 71 | /TEST | I | Test terminal. (Normally H) |
| 72 | AVDD1 | I | Digital circuit power supply. |
| 73 | NC2 | NC | No connection (without internal connection). |
| 74 | AVSS1 | I | Digital circuit GND. |
| 75 | NC3 | NC | No connection (without internal connection). |
| 76 | RSEL | I | RF signal polarity select terminal. When bright level is "H": RSEL=H. When bright level is "L": RSEL=L. |
| 77 | CSEL | I | X'tal oscillation frequency select terminal. X'tal oscillator frequency 33.8688 MHz: CSEL=H. 16.9344 MHz: CSEL=L. |
| 78 | PSEL | I | Test terminal. (Normally L) |
| 79 | MSEL | I | SMCK terminal output frequency select terminal.(H: SMCK = 8.4672 MHz, L: SMCK = 4.2336 MHz) |
| 80 | SSEL | I | SUBQ terminal output mode select terminal. (H: Q code buffer use mode) |

KDC-8020R

CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

8. Automatic adjustment

| | Command | | | | | | | | Operation Summary | Required Time | Traverse Operation |
|------------------------|---------|----|----|----|----|----|----|----|---|---------------|--------------------|
| | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 | | | |
| FO offset AOC1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | Moves the focusing lens to the lowest point and obtained the value of focusing error in this condition for using it as the offset value in compensation. | 140ms | FWD/ REV possible. |
| TR offset AOC2 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | Offset adjustment by turning LDON terminal "L" (laser OFF). Usable by fixing the TES terminal on the side of the externally-connected head amp to "L". | 50ms | FWD/ REV possible. |
| FO balance ABC1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Compensation by injecting external disturbance into the focusing servo loop and balancing the ripples of the 3T component envelope of RF signal in the positive and negative sections of FE signal. The compensation output terminal is FBAL. | Below 0.5S | STOP |
| TR balance ABC2 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | Compensation by using the average tracking error value during rotation of spindle in 6T mode as the balance value. The compensation output terminal is TBAL. | Below 1S | STOP |
| FO coarse gain AGC1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | Performs focusing search at approx. 5.4 Hz and determines the amount of external disturbance injection for fine AGC based on the focusing error S p-p value. The gain itself is not changed. | 190ms | FWD/ REV possible. |
| TR coarse gain AGC2 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | Determines the amount of external disturbance injection for the fine AGC based on the tracking error p-p value during rotation of spindle in 6T mode. The gain itself is not changed. | 100ms | STOP |
| FO fine gain FAGC | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | By injecting external disturbance in the focusing servo loop, adjusts the gain cross-point to the frequency set in the RAM with a label name of GSET. | Below 0.5S | STOP |
| TR fine gain TAGC | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | By injecting external disturbance in the tracking servo loop, adjusts the gain cross-point to the frequency set in the RAM with a label name of GSET. | Below 0.5S | STOP |

CIRCUIT DESCRIPTION

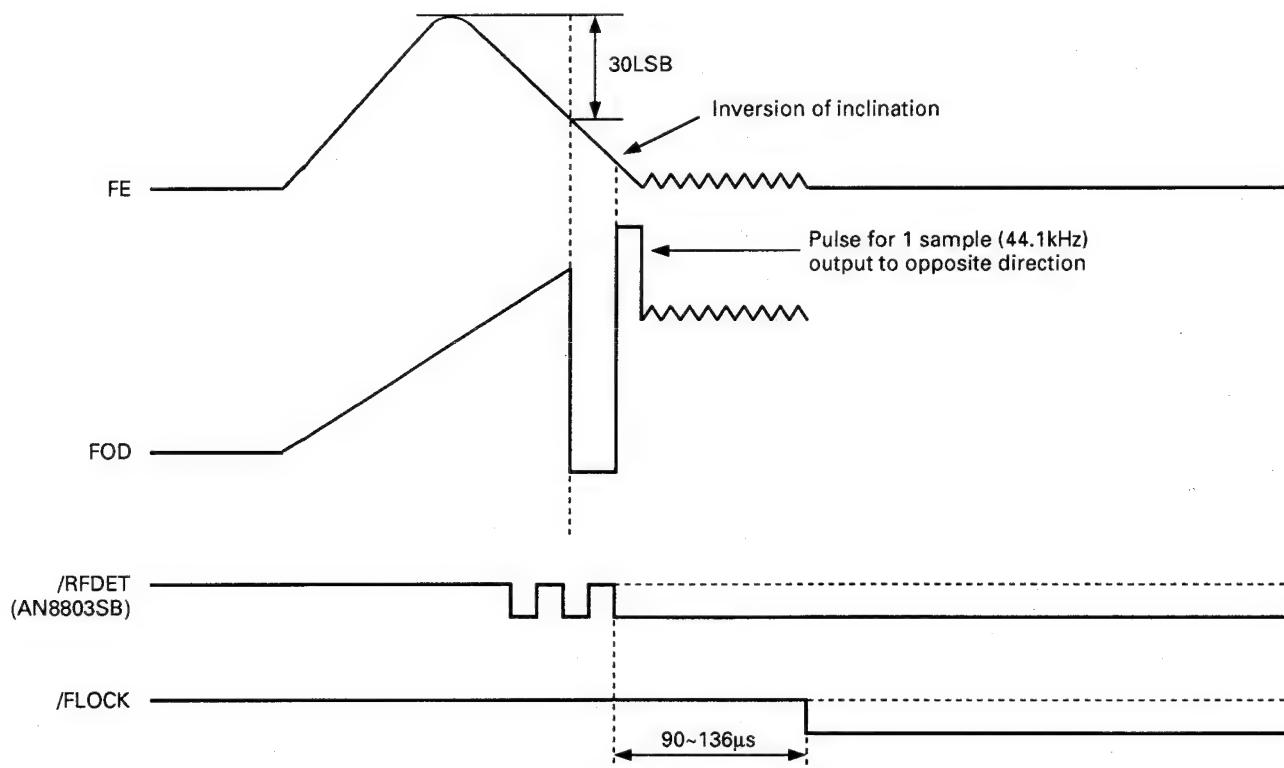
IC2: MN662720RB (X32-4010-00)

Auto focusing search

When the Focusing ON command (TOF or PLY) is input through the μ -com-interface, the FOD terminal generates a triangular wave of approx. 1.3Hz, which drives the focusing coil so the focusing servo is locked automatically when the S-shaped waveform of focusing error signal is detected. /FLOCK goes "L" when the focusing servo is locked successfully.

The just-in-focus point of focusing servo is detected based on the error signal input from the FE terminal. Namely, at the moment a value lower by 30LSB from the peak value of the S-shaped signal at the FE terminal is detected, the lens is stopped by fully driving the servo output to the opposite drive direction.

When the inclination of the error signal from the FE signal is inverted from the previous direction, the stoppage of lens drive is identified and the servo loop is turned ON.



Example of focusing search operation

In case focusing servo locking fails due to a certain reason, the locking operation is re-tried automatically. Also, the locking operation is activated automatically in case the /FLOCK terminal goes "H" during playback (with focusing servo ON, tracking servo ON).

KDC-8020R

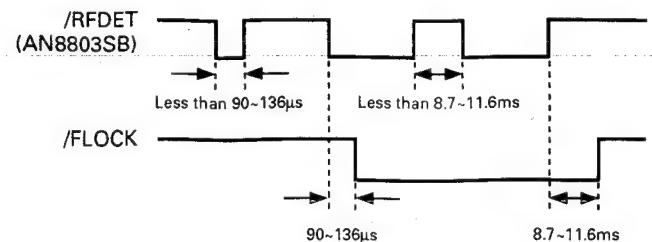
CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

/FLOCK

The focusing servo lock signal /FLOCK is generated from the RF detection signal input ("L" : Detected) from /RFDET. /FLOCK is "H" when focusing is unlocked and "L" when it is locked.

- ①When /RFDET has been "L" for more than 90 to 136 μ s, /FLOCK goes "L".
- ②When /RFDET has been "H" for more than 8.7 to 11.6ms, /FLOCK goes "H".

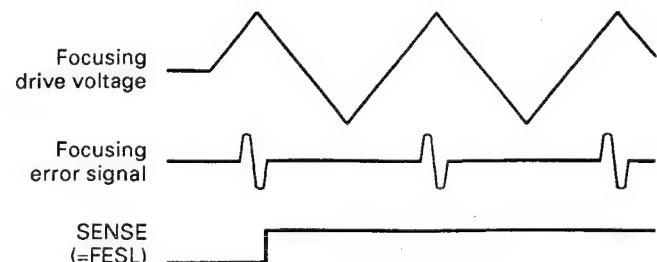


Focusing servo locking timing

Disc detection (DDT)

The FOD terminal generates a triangular wave of approx. 5.4Hz and disc detection signal FESL is output at SENSE. SENSE (FESL) is turned "H" when the disc is detected.

- The focusing servo is not locked in this operation.
- The amplitude of the triangular wave is equal to the signal for use in focusing search.
- The disc detection operation is continued until another command is input.



Example of disc detection operation

Auto tracking servo lock

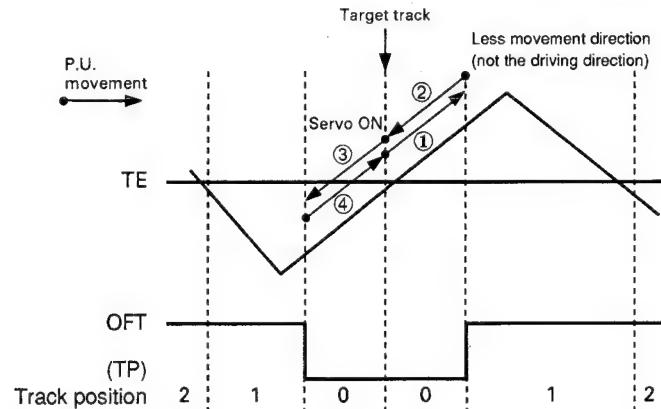
When the tracking ON command (PLY) is input through the μ -com interface, the tracking servo is locked to the nearest track while monitoring tracking error signal TE and off-track signal OFT ("H" : Off the track). In this operation, the loop filter output is basically held and the tracking coil is driven by the kick pulse output from the KICK terminal.

When off-track signal OFT has been "L" continuously for approx. 5.8ms, the kick pulse generation is stopped and the circuitry enters the ordinary servo status.

The /TLOCK terminals goes "L" when the tracking servo is locked.

Tracking servo lock control

- ①, ③ ... Pulse drive in the direction of the target track
- ②, ④ ... Pulse drive in the opposite direction to the target track
- Servo is turned ON when the inclination of TE changes while TP (Track Position)=0 (OFT= "L") (minimum relative velocity).
- For the tracking servo, the P.U. is forced by the pulse drive to move until the on-track position (OFT= "L") of the target track and servo is locked when the relative velocity becomes slow enough.



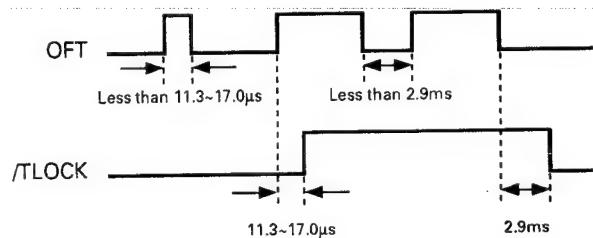
CIRCUIT DESCRIPTION

IC2: MN662720RB (X32-4010-00)

/TLOCK

Tracking lock signal TLOCK is generated from the off-track signal input from OFT. /TLOCK is "H" when tracking is unlocked and "L" when it is locked.

- ① When /OFT has been "L" for more than 2.9ms, /TLOCK goes "L".
- ② When /OFT has been "H" for more than 11.3 to 17.0 μ s, /TLOCK goes "H".

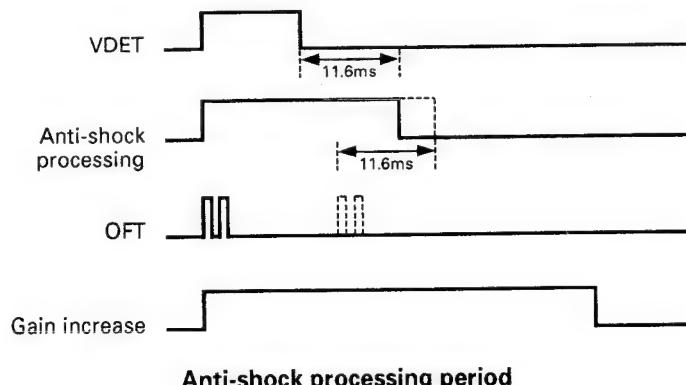


Tracking servo locking timing

Anti-shock processing

The forced braking is applied for the specified period of time after vibration detection signal VDET ("H" : Detected) has returned from "H" to "L". If off-track signal OFT goes "H" in this period, a kick pulse is generated to turn OFT "L" and improve the resistance against shock. If OFT goes "H" again during the forced braking, the forced braking is extended for the specified period from that moment.

- As the traverse is in the STOP status during the forced braking, do not keep the VDET terminal "H". The forced braking period can be set with data setting SET0.
- It is possible to increase the gain for a certain period when vibration detection signal VDET has gone "H". The amount and period of the gain increase can be set with data setting VSET.



Fail-safe

In case the absolute value of the low-frequency component of the loop filter increases abnormally due to a certain reason, the low-frequency component is clipped because there is a fear of run-away of tracking servo.

- The threshold absolute value of the low-frequency component for activating the fail-safe function can be set with the SYS command.
- The fail-safe function is canceled for approx. 280ms after the completion of kick operation.

Polarity of KICK

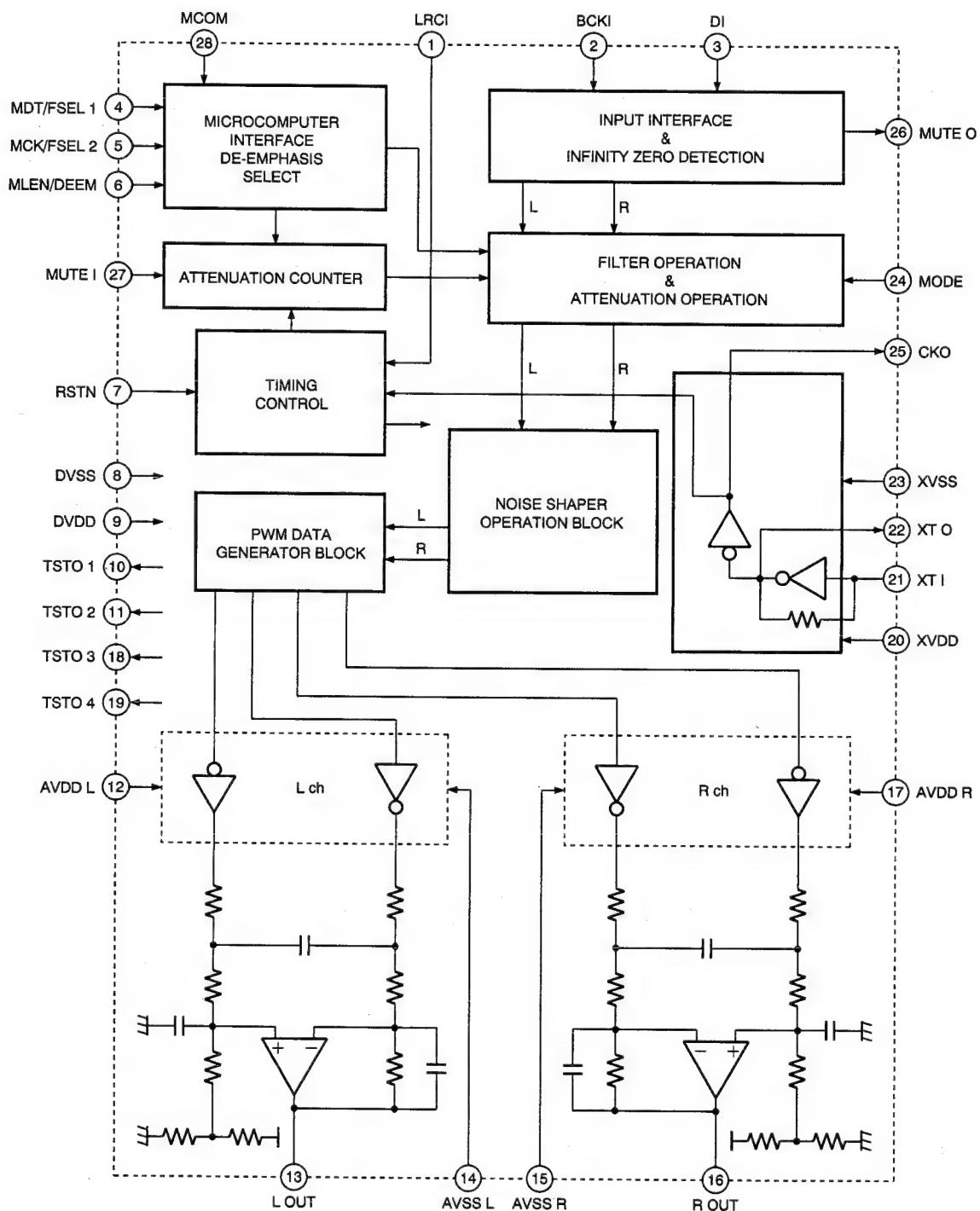
The focusing lens moves toward the inner direction of the disc while KICK is "H".

KDC-8020R

CIRCUIT DESCRIPTION

IC3: SM5873BS (X32-4010-00) D/A converter

Block diagram



CIRCUIT DESCRIPTION

IC3: SM5873BS (X32-4010-00)

Terminal description

| Pin No. | Pin name | I/O | Function |
|---------|-----------|-----|---|
| 1 | LCRI | Ip | Sample late clock (fs) of input data H: Lch L: Rch |
| 2 | BCKI | Ip | Bit clock of input data |
| 3 | DI | Ip | Data input |
| 4 | MDT/FSEL1 | Ip | MCOM=H:MDT Microcomputer interface data |
| 5 | MCK/FSEL2 | Ip | MCOM=H:MCK Microcomputer interface clock |
| 6 | MLEN/DEEM | Ip | MCOM=H: MLEN Microcomputer interface latch enable. MCOM=L: DEEM De-emphasis control (DEEM=H/L: De-emphasis ON/OFF) |
| 7 | RSTN | Ip | System reset (RSTN=H: Normal mode) (RSTN=L: Reset) |
| 8 | DVSS | — | Digital ground (0V) |
| 9 | DVDD | — | Digital VDD (5V) |
| 10 | TSTO1 | O | Test output 1 (open) |
| 11 | TSTO2 | O | Test output 2 (open) |
| 12 | AVDDL | — | Lch analog VDD (5V) |
| 13 | LOUT | O | Lch analog output |
| 14 | AVSSL | — | Lch analog ground (0V) |
| 15 | AVSSR | — | Rch analog ground (0V) |
| 16 | ROUT | O | Rch analog output |
| 17 | AVDDR | — | Rch analog VDD (5V) |
| 18 | TSTO3 | O | Test output 3 (open) |
| 19 | TSTO4 | O | Test output 4 (open) |
| 20 | XVDD | — | X'tal VDD (5V) |
| 21 | XTI | I | Oscillator input (System clock input: 384 fs) |
| 22 | XTO | O | Oscillator output |
| 23 | XVSS | — | X'tal ground (0V) |
| 24 | MODE | Ip | Dizzer adding switching (MODE=H: With dizzer adding) (MODE=L: Without dizzer adding) |
| 25 | CKO | O | Oscillator output clock (384 fs) |
| 26 | MUTEO | O | Infinity zero detection output |
| 27 | MUTEI | Ip | Mute input (MUTE=H: DF output soft mute ON) (MUTE=L: DF output soft mute OFF) |
| 28 | MCOM | Ip | Interface selection control (MDT/FSEL1, MCK/FSEL2, MLEN/DEEM) (MCOM=L: FSEL1, FSEL2, DEEM) |

(Ip means input pin with pull-up resistor. When the pin fixed to H, connect VDD is recommended.)

FSEL mode: relation of FSEL1 (pin 4) and FSEL2 (pin 5)

When MCOM=L

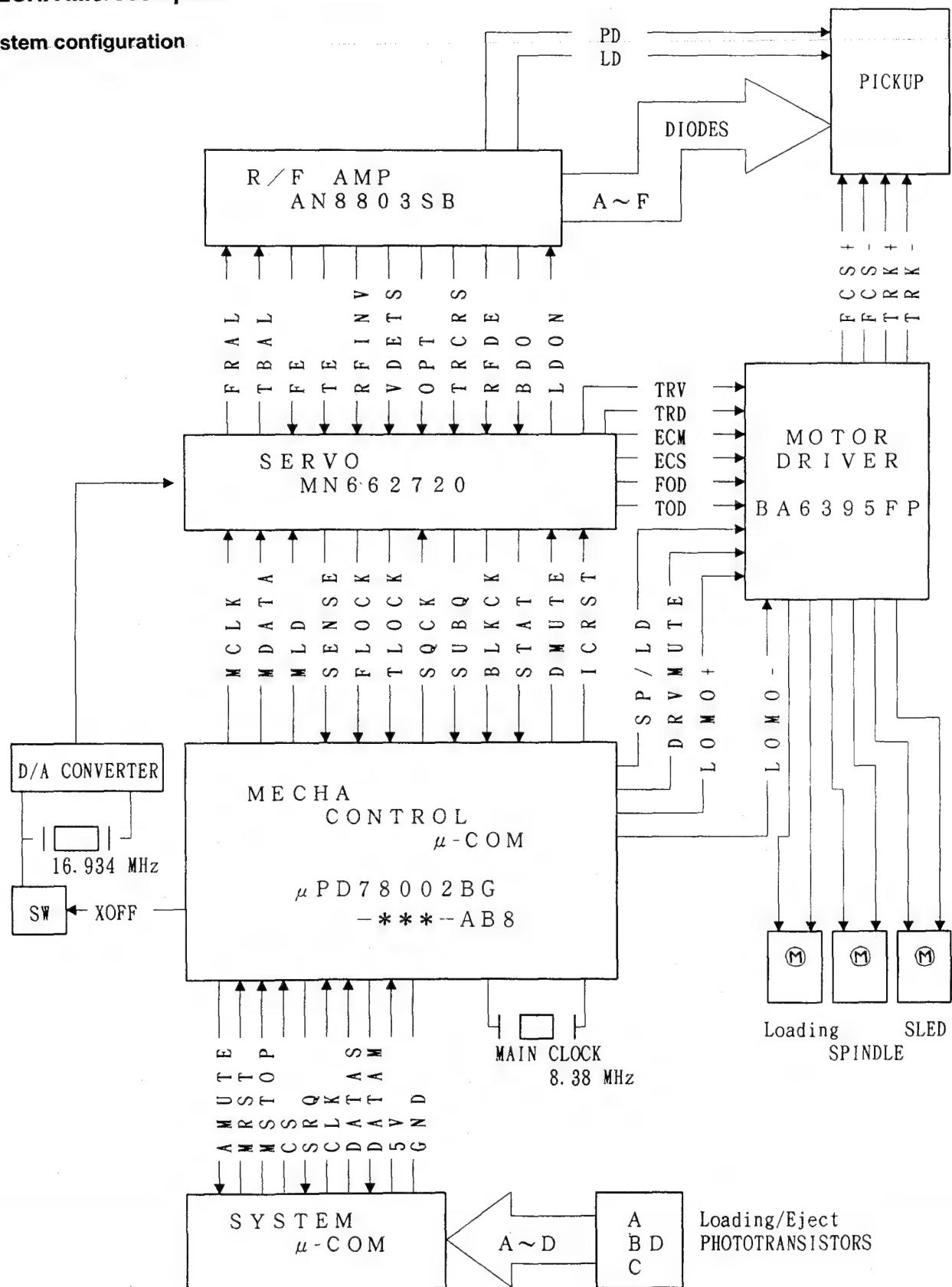
| FSEL2 | | |
|-------|-----------|---------|
| FSEL1 | L | H |
| L | 44.1kHz | 48.0kHz |
| H | (44.1kHz) | 32.0kHz |

KDC-8020R

CIRCUIT DESCRIPTION

IC6: 78002BGC603-AB8 (X32-4010-00)
MECHA Microcomputer

System configuration

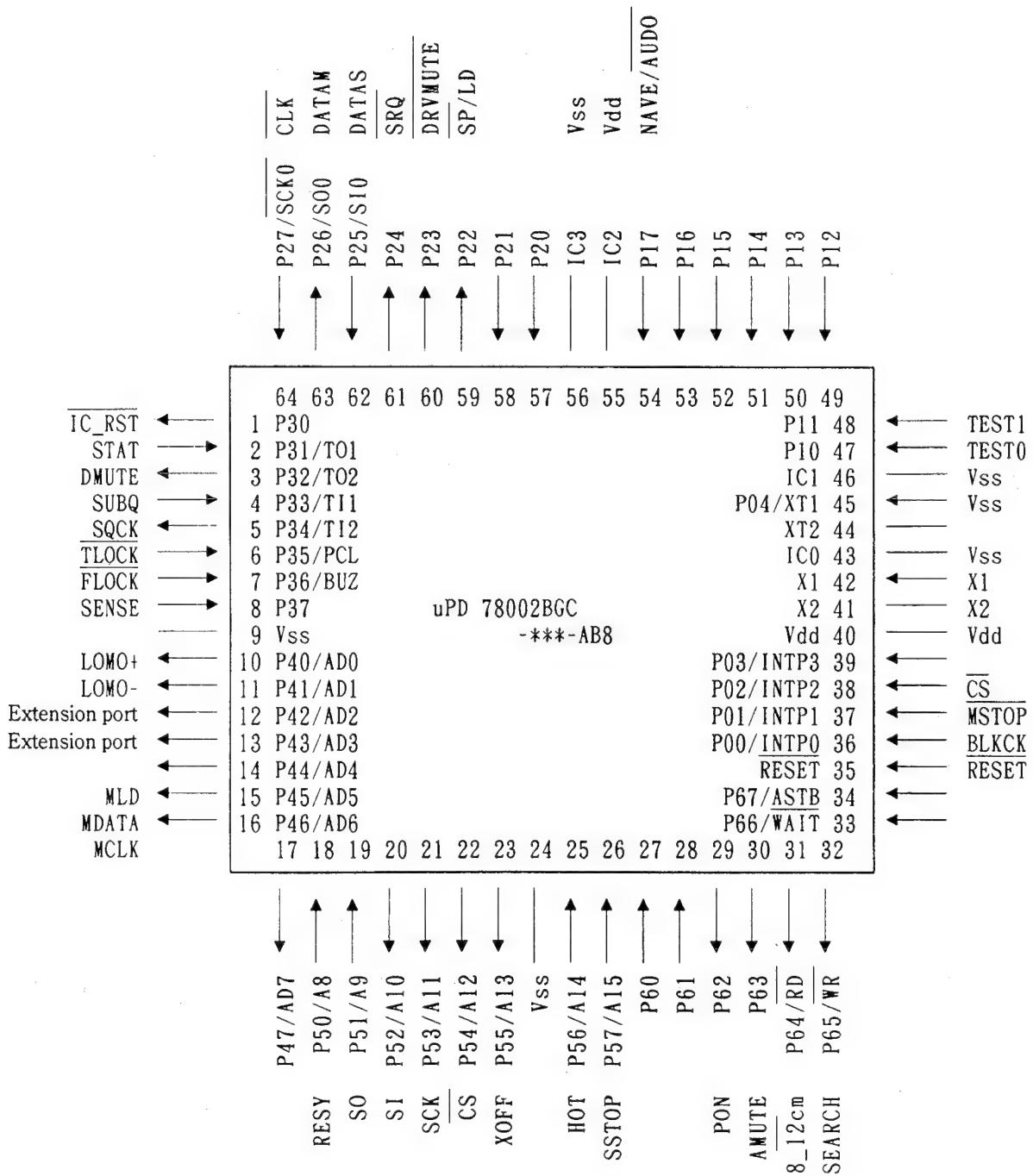


KDC-8020R

CIRCUIT DESCRIPTION

IC6: 78002BGC603-AB8 (X32-4010-00)

Microcomputer pin layout



Note: Pins 27 to 30 are N CH open drain terminals.

KDC-8020R

CIRCUIT DESCRIPTION

IC6: 78002BGC603-AB8 (X32-4010-00)

Terminal description

| Pin | Pin Name | Name | I/O | Function | | | | | | | | | | | | | | | |
|-------|----------|------------------|-----|---|--|---------|---------|------|---|---|------|---|---|-------|---|---|-------|---|---|
| 1 | P30/T00 | RST | O | • Servo IC reset terminal. Used when the power is turned ON. | | | | | | | | | | | | | | | |
| 2 | P31/T01 | STAT | I | • Status signal from servo IC (MN662720). To be monitored when applying control. (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK) | | | | | | | | | | | | | | | |
| 3 | P32/T11 | DMUTE | O | • Digital muting terminal of servo IC (MN662720). "H" for ON. | | | | | | | | | | | | | | | |
| 4 | P33/T11 | SUBQ | I | • Subcode Q code input from servo IC (MN662720). | | | | | | | | | | | | | | | |
| 5 | P34/T12 | SQCK | O | • External clock output for subcode Q register of servo IC (MN662720). Clock output = 2 MHz. | | | | | | | | | | | | | | | |
| 6 | P35/PCL | TLOCK | I | • Tracking servo locking input signal from servo IC (MN662720). "L" when locked. | | | | | | | | | | | | | | | |
| 7 | P36/BUZ | FLOCK | I | • Focusing servo locking input signal from servo IC (MN662720). "L" when locked. | | | | | | | | | | | | | | | |
| 8 | P37 | SENSE | I | • Sense signal from servo IC (MN662720). To be monitored when applying control. (OFT, FESL, NACEND, NAJEND, POSAD, SFG) | | | | | | | | | | | | | | | |
| 9 | Vss | | | | | | | | | | | | | | | | | | |
| 10 | P40/AD0 | LOMO+ | O | • Control of the loading/ejection motor of Mechanism unit. This terminal is an extension port controlled by the system microcomputer. | | | | | | | | | | | | | | | |
| 11 | P41/AD1 | LOMO- | O | • Control of the loading/ejection motor of Mechanism unit. This terminal is an extension port which is controlled by the system microcomputer. <table border="1" style="margin-left: 20px;"> <tr> <th></th> <th>LOMO(+)</th> <th>LOMO(-)</th> </tr> <tr> <td>Open</td> <td>0</td> <td>0</td> </tr> <tr> <td>Load</td> <td>0</td> <td>1</td> </tr> <tr> <td>Eject</td> <td>1</td> <td>0</td> </tr> <tr> <td>Brake</td> <td>1</td> <td>1</td> </tr> </table> Set open when spindle operation. | | LOMO(+) | LOMO(-) | Open | 0 | 0 | Load | 0 | 1 | Eject | 1 | 0 | Brake | 1 | 1 |
| | LOMO(+) | LOMO(-) | | | | | | | | | | | | | | | | | |
| Open | 0 | 0 | | | | | | | | | | | | | | | | | |
| Load | 0 | 1 | | | | | | | | | | | | | | | | | |
| Eject | 1 | 0 | | | | | | | | | | | | | | | | | |
| Brake | 1 | 1 | | | | | | | | | | | | | | | | | |
| 12 | P42/AD2 | Extension port 2 | O | • This terminal is an extension port which can be controlled by the system microcomputer. | | | | | | | | | | | | | | | |
| 13 | P43/AD3 | Extension port 3 | O | • This terminal is an extension port which can be controlled by the system microcomputer. | | | | | | | | | | | | | | | |
| 14 | P44/AD4 | MLD | O | • Microcomputer command loading signal to servo IC (MN662720). "L" for loading (Mechanism µ-COM) → (Servo IC) | | | | | | | | | | | | | | | |
| 15 | P45/AD5 | MDATA | O | • Microcomputer command data signal to servo IC (MN662720). (Mechanism µ-COM) → (Servo IC) | | | | | | | | | | | | | | | |
| 16 | P46/AD6 | MCLK | O | • Microcomputer command clock signal to servo IC (MN662720). Latched at "positive going". (Mechanism µ-COM) → (Servo IC) | | | | | | | | | | | | | | | |
| 17 | P47/AD7 | Not used | O | | | | | | | | | | | | | | | | |
| 18 | P50/A8 | RESY | I | • Re-sync signal of frame sync of servo IC (MN662720). "H": Synchronized. "L": Out of sync. | | | | | | | | | | | | | | | |
| 19 | P51/A9 | SO (anti-shock) | I | Not used. Connected to GND. | | | | | | | | | | | | | | | |
| 20 | P52/A10 | SI (anti-shock) | O | Not used. | | | | | | | | | | | | | | | |
| 21 | P53/A11 | SCK (anti-shock) | O | Not used. | | | | | | | | | | | | | | | |

CIRCUIT DESCRIPTION

IC6: 78002BGC603-AB8 (X32-4010-00)

| Pin | Pin Name | Name | I/O | Function |
|-----|---------------|----------------|-----|---|
| 22 | P54/A12 | CS(anti-shock) | O | Not used. |
| 23 | P55/A13 | XOFF | O | • Control terminal which turns ON/OFF the X'tal oscillator circuitry for the servo IC and anti-shock memory IC. "L" for ON, "H" for OFF. |
| 24 | Vss | | | |
| 25 | P56/A14 | HOT | I | • Detection of temperature rise in and near the servo circuitry. "H" in case of hot error. |
| 26 | P57/A15 | SSTOP | I | • Detection of sled of the Mechanism unit. "L" with innermost position. |
| 27 | P60 | Not used | I | |
| 28 | P61 | Not used | I | |
| 29 | P62 | PON | O | • Servo-related IC power control terminal. "H" for OFF, "L" for ON. |
| 30 | P63 | AMUTE | O | • Analog muting of servo IC (MN662720). "L" for ON. • This circuit is dealt with by the system side. |
| 31 | P64/RD | 8_12cm | O | Not used. |
| 32 | P65/WR | SEARCH | O | Not used. |
| 33 | P66/WAIT | Not used | I | |
| 34 | P67/ASTB | Not used | I | |
| 35 | RESET | | I | • Mechanism microcomputer reset terminal. "L" when reset. |
| 36 | P00/INTP0/TIO | BLKCK | I | • Subcode block clock signal from servo IC (MN662720). [(fBLACK) = 75 Hz during normal playback] |
| 37 | P01/INTP1 | MSTOP | I | • Mechanism microcomputer standby control. "L" for standby. |
| 38 | P02/INTP2 | CS | I | • Communication request from system microcomputer. Interrupt occurs at negative going. (System μ -COM) \rightarrow (Mechanism μ -COM) |
| 39 | P03/INTP3 | Not used | I | |
| 40 | VDD | | | |
| 41 | X2 | X2 | | • Main clock of microcomputer. |
| 42 | X1 | X1 | I | • Main clock of microcomputer. |
| 43 | IC0(VDD) | IC0 | - | |
| 44 | XT2 | XT2 | - | • Sub-clock of microcomputer. |
| 45 | P04/XT1 | XT1 | I | • Sub-clock of microcomputer. |
| 46 | IC1 | IC1 | - | |
| 47 | P10 | TEST0 | I | • Terminal for use in test mode. |
| 48 | P11 | TEST1 | I | • Terminal for use in test mode. |
| 49 | P12 | Not used | I | |
| 50 | P13 | Not used | I | |
| 51 | P14 | Not used | I | |
| 52 | P15 | Not used | I | |
| 53 | P16 | Not used | I | |
| 54 | P17 | NAVI/AUD | | • Mechanism microcomputer destination judgment terminal. *1 "H" for navigation. *2 "L" for audio. |

KDC-8020R

CIRCUIT DESCRIPTION

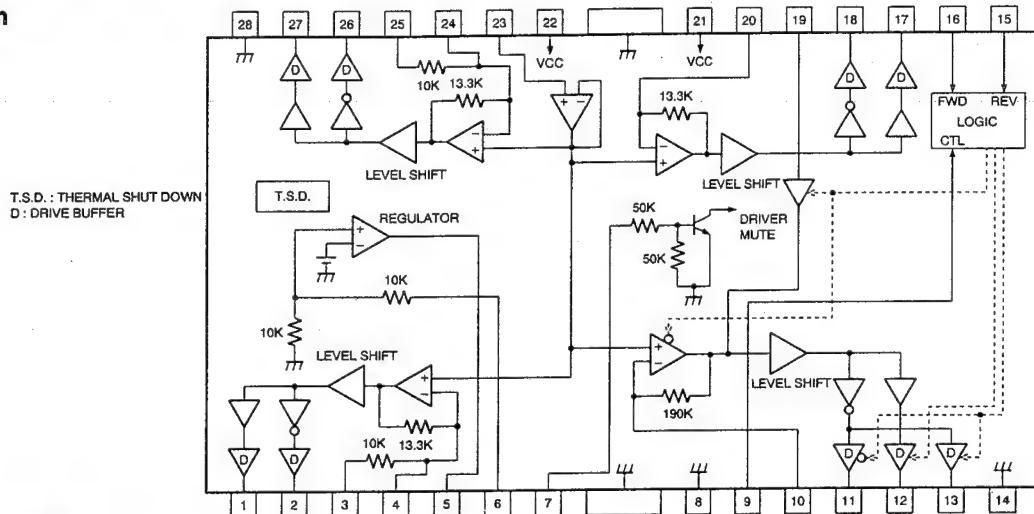
IC6: 78002BGC603-AB8 (X32-4010-00)

| Pin | Pin Name | Name | I/O | Function |
|-----|-------------|----------|-----|---|
| 55 | IC2 | IC2 | - | |
| 56 | IC3 | IC3 | - | |
| 57 | P20 | Not used | I | • Unused terminal. |
| 58 | P21/SO1 | Not used | I | • Unused terminal. |
| 59 | P22/SCK1 | SP/LD | O | • Spindle/loading motor switching. Switches the usage of servo driver between spindle motor drive and loading motor drive. Loading → "H" Spindle → "L" |
| 60 | P23/STB | DRV MUTE | O | • Driver muting. Mutes the servo driver while the master clock is stopped in other cases than loading. Muting ON → "L" |
| 61 | P24/BUSY | SRQ | O | • Request of communication to mechanism microcomputer. (Mechanism μ -COM) → (System μ -COM) |
| 62 | P25/SI0/SB0 | DATAS | I | • Data from system microcomputer. (System μ -COM) → (Mechanism μ -COM) |
| 63 | P26/SO0/SB1 | DATAM | O | • Data terminal from mechanism microcomputer. (Mechanism μ -COM) → (System μ -COM) |
| 64 | P27/SCK0 | CLK | I | • Clock from system microcomputer. (System μ -COM) → (Mechanism μ -COM) |

CIRCUIT DESCRIPTION

IC7: BA6795FP (X32-4010-00) BLT driver

Block diagram



Terminal description

| Pin No. | Pin name | I/O | Function |
|---------|----------|-----|---|
| 1 | OUT1-1 | O | CH1 minus output |
| 2 | OUT1-2 | O | CH1 plus output |
| 3 | IN1-1 | I | CH1 input |
| 4 | IN1-2 | I | CH1 input for gain adjustment |
| 5 | Vreg-B | O | External Tr connection to base |
| 6 | Vreg-Out | O | Regulated voltage output (External Tr connection for collector) |
| 7 | MUTE | I | Mute control pin |
| 8 | GND | - | Ground |
| 9 | CTL | I | Loading/spindle switching pin |
| 10 | IN2 | I | CH2 input for gain adjustment |
| 11 | OUT2-1 | O | CH2 plus output |
| 12 | OUT2-2 | O | CH2 minus output/Loading plus output |
| 13 | OUT2-3 | O | Loading minus output |
| 14 | GND | - | Sub straight ground |
| 15 | REV | I | Loading reverse input pin |
| 16 | FWD | I | Loading forward input pin |
| 17 | OUT3-1 | O | CH3 minus output |
| 18 | OUT3-2 | O | CH3 plus output |
| 19 | LDIN | I | Loading input |
| 20 | IN3 | I | CH3 input for gain adjustment |
| 21 | VCC | - | VCC |
| 22 | VCC | - | VCC |
| 23 | VrefIN | I | Bias AMP input pin |
| 24 | IN4-2 | I | CH4 input for gain adjustment |
| 25 | IN4-1 | I | CH4 input |
| 26 | OUT4-2 | O | CH4 plus output |
| 27 | OUT4-1 | O | CH4 minus output |
| 28 | GND | - | Sub straight GND |

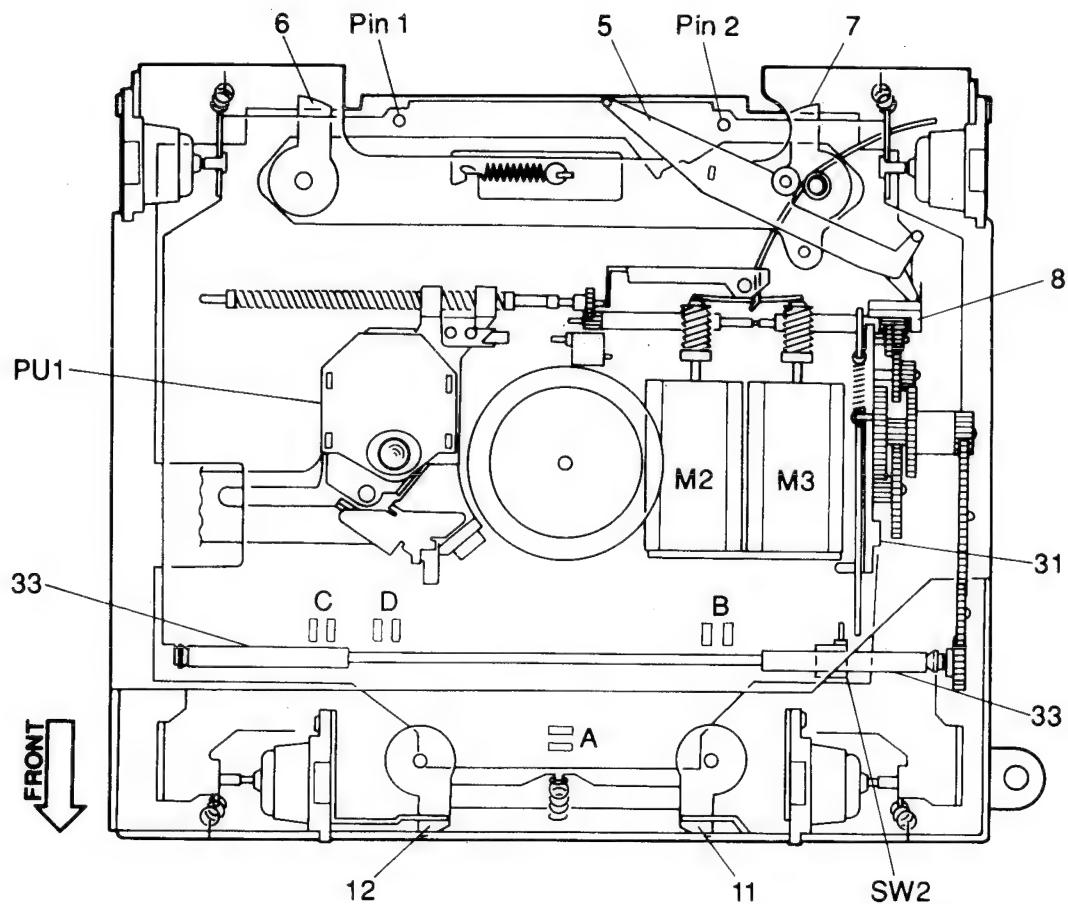
Note 1: Plus/minus outputs mean the phase against input.

35

Note 2: Loading forward/reverse mean the phase against mode.

KDC-8020R

MECHANISM DESCRIPTION

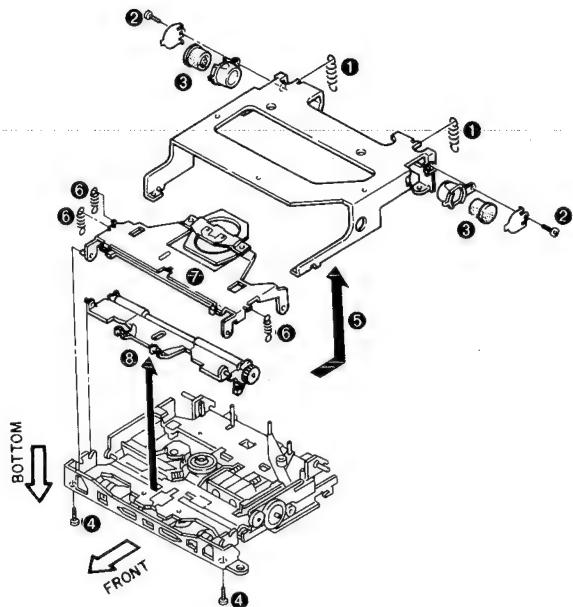


MECHANISM DESCRIPTION

CD mechanism disassembly procedure

Removing the loading roller ass'y

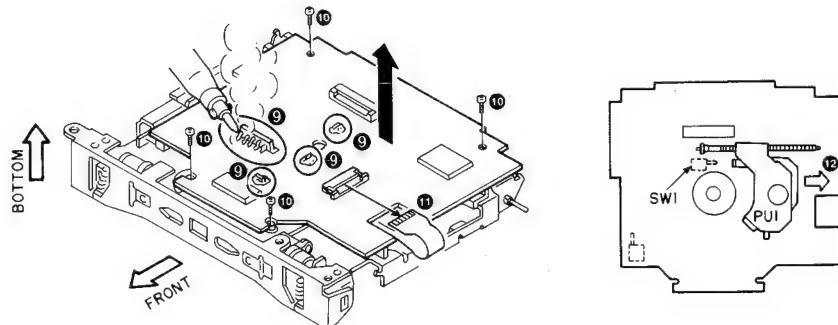
1. Remove the 2 springs (1).
2. Remove the 2 screws (2) then remove the damper (3).
3. Remove the 2 screws (4) then remove the cover by sliding it horizontally (5).
4. Remove the 3 springs (6) then remove the clamp lever (7).
5. Remove the loading roller ass'y (8).



Removing the circuit board

1. Melt solder on the 4 positions on the loading motor and spindle motor (9).
2. Remove the 4 screws (10).
3. Remove the flexible wire (11) then remove the circuit board.

※ When attaching the circuit board, slide the pickup ass'y slightly outward to prevent damage to SW1 (12).

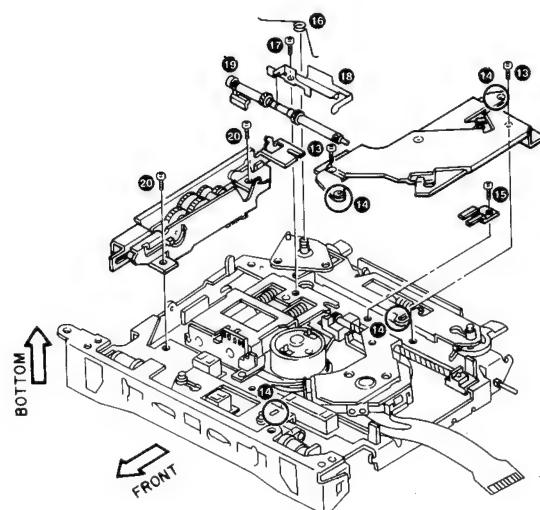


Removing the gear ass'y

1. Remove the 2 screws (13) then remove the cam plate.

※ When attaching the cam plate, be careful about the position of the hole (14).

2. Remove the screw (15) then remove the push plate.
3. Remove the spring (16).
4. Remove the screw (17) then remove the plate spring (18).
5. Remove the worm gear (19).
6. Remove the 2 screws (20) then remove the gear ass'y.



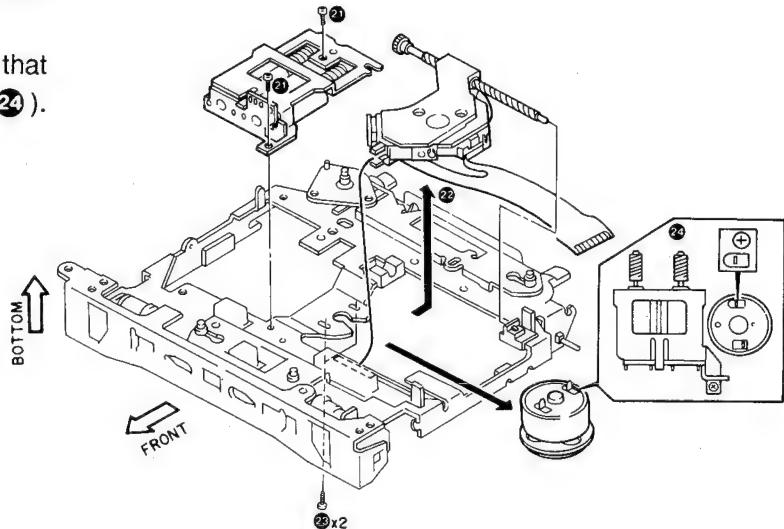
KDC-8020R

MECHANISM DESCRIPTION

Removing the spindle motor

1. Remove the 2 screws (21) then remove the loading motor ass'y.
2. Remove the pickup block by sliding it horizontally (22).
3. Remove the 2 screws (23) then remove the spindle motor.

※ When attaching the spindle motor, position it so that the (+) terminal comes on the worm gear side (24).

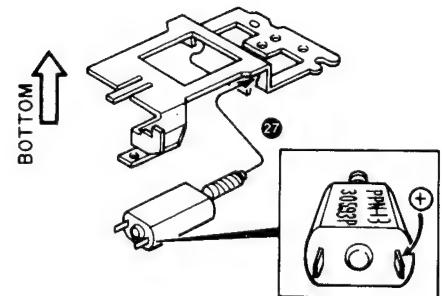
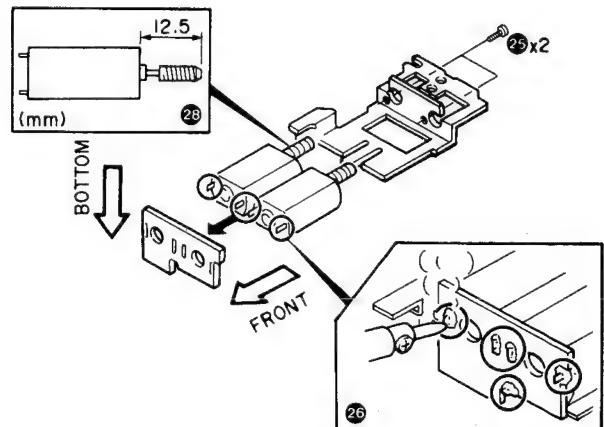


Removing the loading motor and sled motor

1. Remove the 2 screws (25).
2. Melt solder on 5 positions (26) and remove the motor and bracket.

※ When attaching the loading motor and sled motor, position them so that the surface on which characters are printed comes on the bracket side (27).

※ When attaching the worm gear on the loading motor or sled motor, attach so that the top of the worm gear projects by 12.5 mm (28).

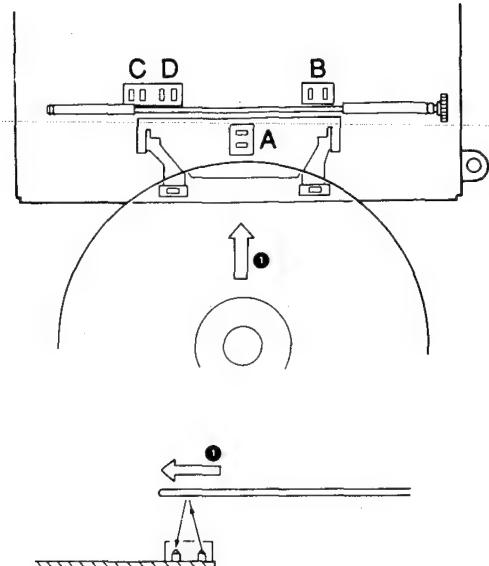


MECHANISM DESCRIPTION

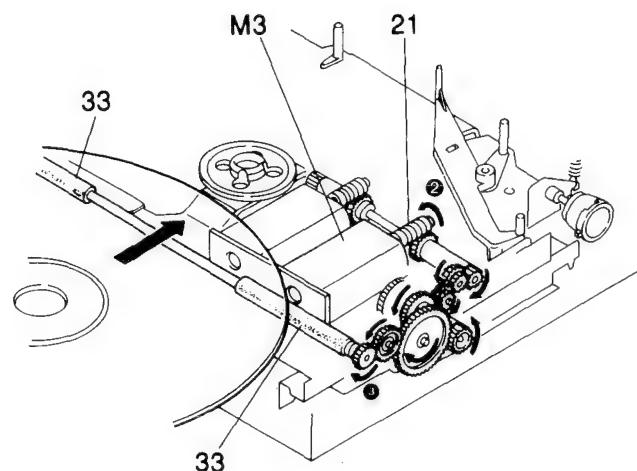
Mechanism operation description

1. Loading

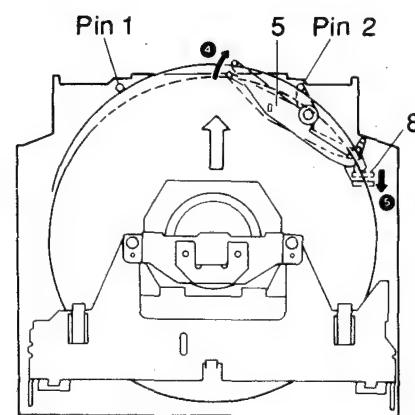
1. Place a CD (Compact Disc).
2. Photosensors A, B and D detect the insertion of CD.



3. When three photosensors A, B, C and D turn ON, the μ -COM outputs instruction to start rotation of the loading motor (2).
4. The rotation is transmitted to the worm gear (21) then to the loading roller (33) (3).
5. The CD is pulled in by the friction of the rubber roller (33).



6. When the CD hits the positioning pin (pins 1, 2), the lever (5) is turned by the CD in the direction of the arrow (4).
7. The lever (5) pushes the trigger arm (8) (5).

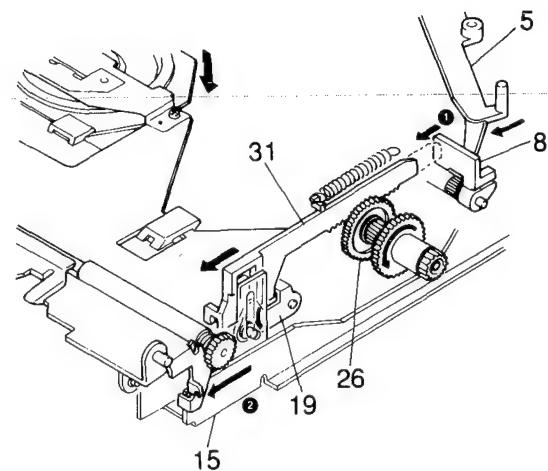


KDC-8020R

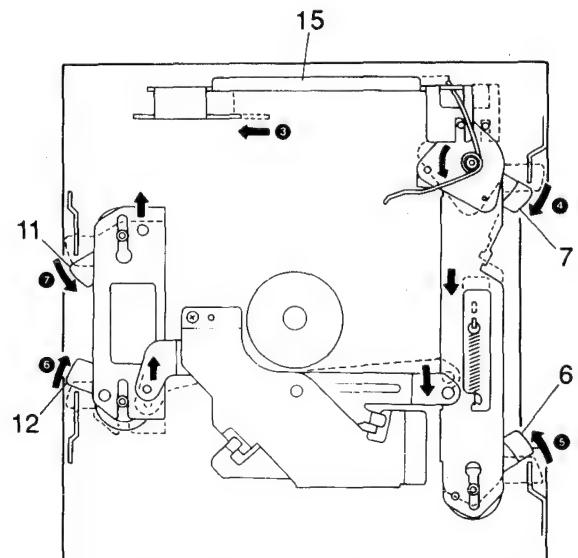
MECHANISM DESCRIPTION

2. Chucking

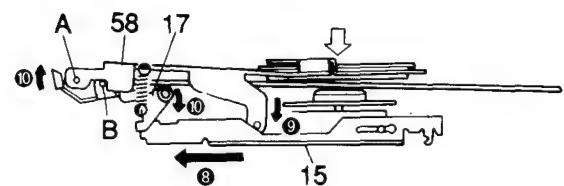
1. When the trigger arm (8) is pressed (①), the rack (31) and gear (26) mesh with each other and move the slider (15) by means of the arm (19) (②).
2. Interlocked with the slider (15), the mechanism lock mechanism and clamp mechanism are activated.



3. With the mechanism lock mechanism, the movement of the slider (15) in the direction of the arrow (③) releases the 4 lock levers (7, 6, 11, 12) (④, ⑤, ⑥, ⑦) and the mechanism deck is floated.

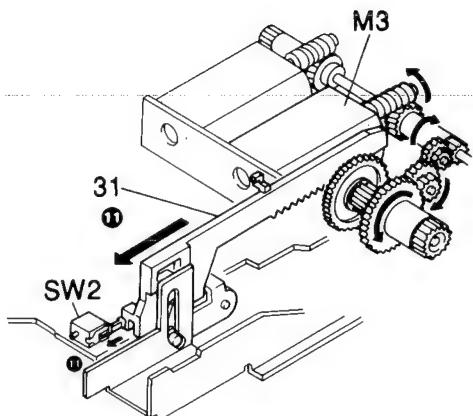


4. With the clamp mechanism, the movement of the slider (15) (⑧) moves the clamp holder (58) downwards (⑨) around the fulcrum (A), chucking the CD onto the turntable. The roller holder (17) turns around the fulcrum (B) (⑩) to release the CD.



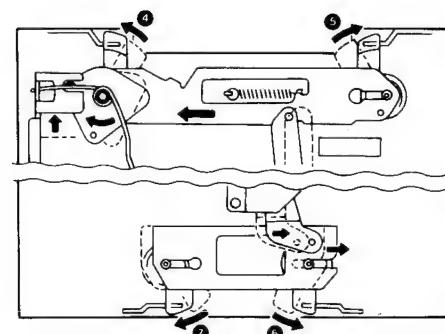
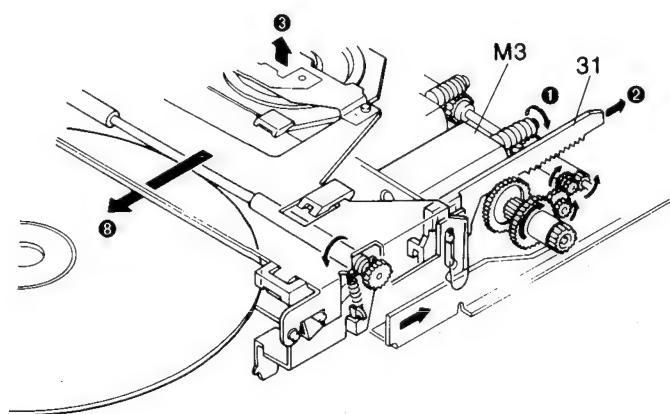
MECHANISM DESCRIPTION

5. After the operation above, the projection on the rack (31) pushes the down switch (SW2) (⑪) to stop the loading motor (M3).

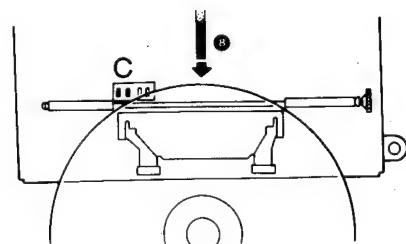


3. Ejection

1. When the eject button is pressed, the loading motor (M3) rotates in the reverse direction (①).
2. The rack (31) moves into the direction of the arrow (②), causing the clamp mechanism and mechanism lock mechanism to move in the opposite directions to loading (③ , ④ , ⑤ , ⑥ , ⑦), and the mechanism deck is fixed and the CD is ejected(⑧).

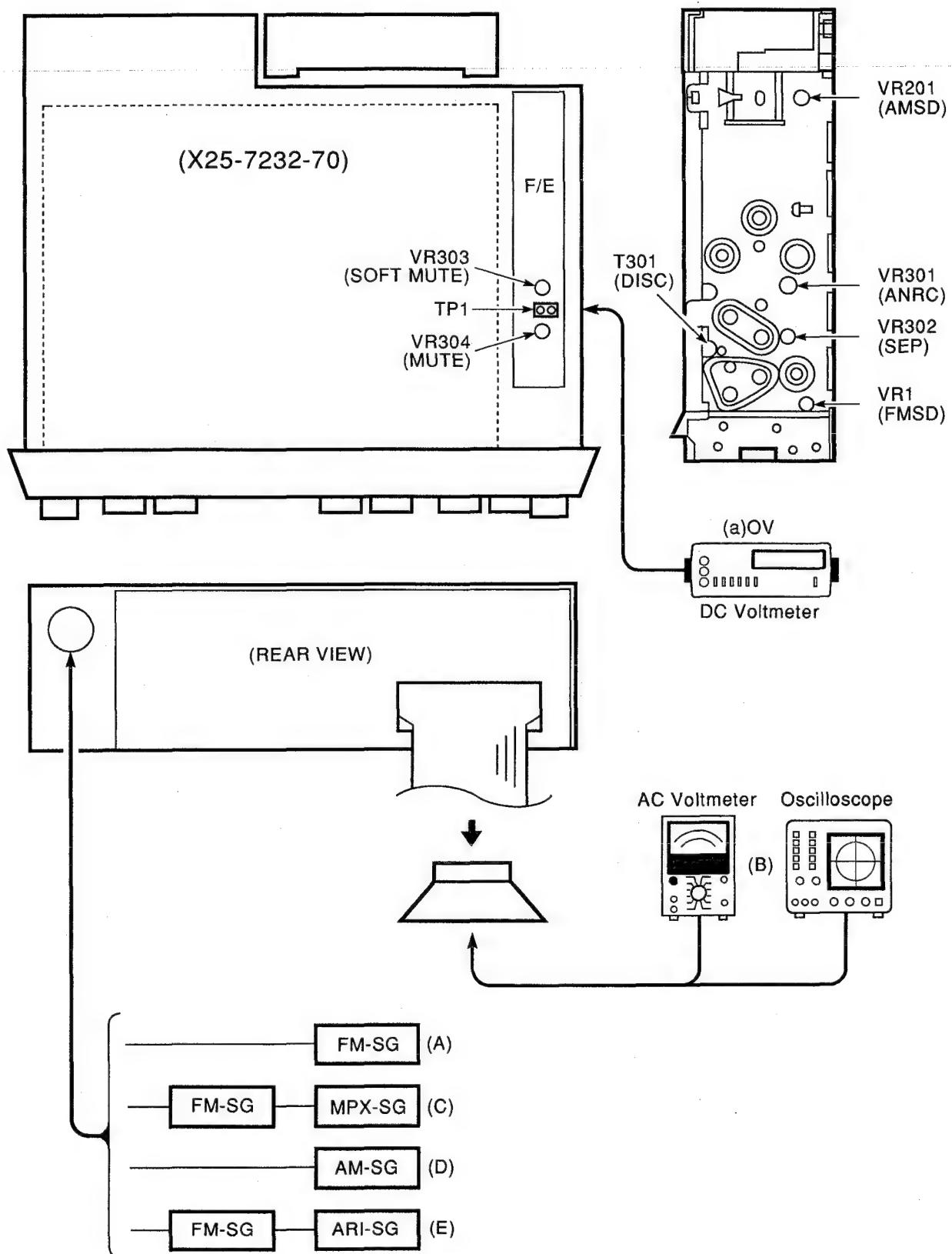


3. The motor (M3) stops at the moment the CD is ejected to outside the position of sensor C.



KDC-8020R

MECHANISM DESCRIPTION



KDC-8020R

ADJUSTMENT

| No. | ITEM | INPUT SETTINGS | OUTPUT SETTINGS | TUNER (RECEIVER) | ALIGNMENT POINTS | ALIGN FOR | FIG. |
|-------------------|-----------------|---|--|------------------|------------------------|--|------|
| FM SECTION | | | | | | | |
| 1 | DISCRIMINATOR | (A) 98.1 MHz 0 dev 60 dB μ (ANT input) | Connect a DC voltmeter to pin 2 of TP1 (TU1, X25-) | FM 98.1 MHz | T301 (TU1 in X25-) | 0 V | (a) |
| 2 | SOFT MUTE LEVEL | (A) 98.1 MHz 1 kHz, ± 40 kHz dev 60 dB μ \rightarrow No input | (B) | FM 98.1 MHz | VR303 (TU1 in X25-) | Assuming that the output is 0 dB with an input of 60 dB μ , adjust so that the output level is -25 dB. | |
| 3 | SEPARATION | (C) 98.1 MHz 1 kHz, ± 40 kHz dev Pilot: ± 6.0 kHz dev Selector: L or R 60 dB μ (ANT input) | (B) | FM 98.1 MHz | VR302 (TU1 in X25-) | Adjust it so that the crosstalk from L to R and R to L become minimum. | |
| 4 | ANRC | (C) 98.1 MHz 1 kHz, ± 40 kHz dev Pilot: ± 6.0 kHz dev Selector: L or R 35 dB μ (ANT input) | (B) | FM 98.1 MHz | VR301 (TU1 in X25-) | Separation 10 dB | |
| 5 | SEEK STOP LEVEL | (A) 98.1 MHz 0 dev 20 dB μ (ANT input) | TEST MODE: ON | FM 98.1 MHz | VR1 (X25-) | Adjust so that the "▶■" indicator in the front panel are lit. Only "▶" is lit: Too low Only "■" is lit: Too high | |
| 6 | MUTE LEVEL | (A) 98.1 MHz 0 dev 5 dB μ (ANT input) | TEST MODE: ON | FM 98.1 MHz | VR304 (TU1 in X25-) | Adjust so that the "SCN" indicator in the front panel are lit. | |
| AM SECTION | | | | | | | |
| [1] | SEEK STOP LEVEL | (D) 999 kHz 0% mod 35 dB μ (ANT input) | - | AM 999 kHz | VR201 (TU1 in X25-) | STOP | |

*The CD servo unit (X32-) is adjustment-free.
There is no point to be adjusted.

*Test mode : Turn power ON while holding the **▲** and **PTY** keys depressed. (All of the LCD elements light.)
Then, press the **SRC** key.
To quit : Power OFF.

KDC-8020R

ABGLEICH

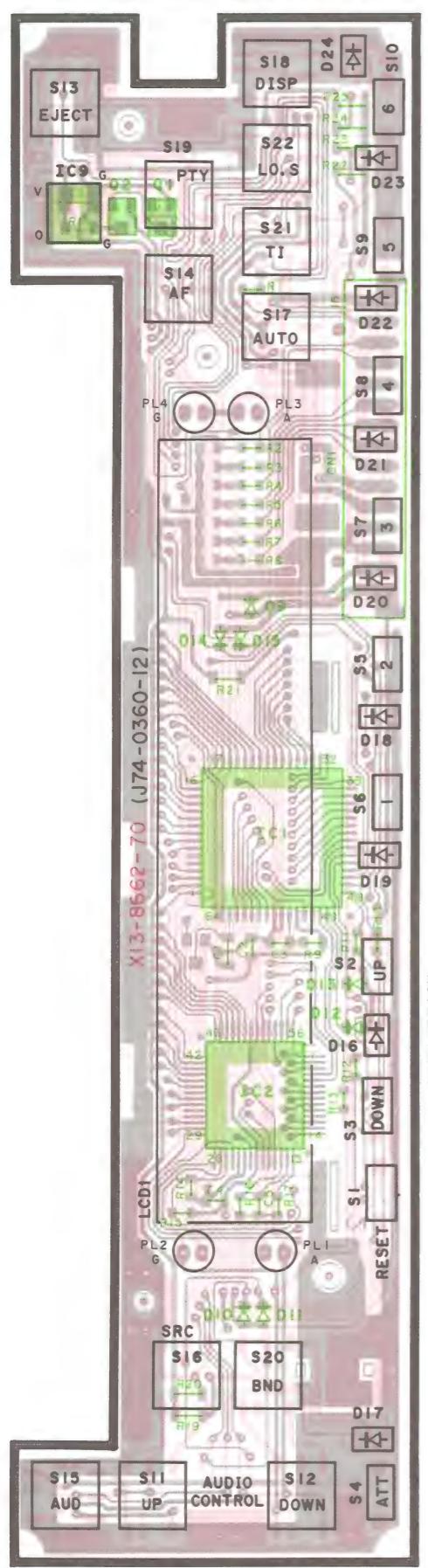
| Nr. | GEGENSTAND | EINGANGSEINSTELLUNGEN | AUSGANGSEINSTELLUNGEN | TUNER (RECEIVER) | ABGLEICH-PUNKTE | ABGLEICHEN AUF | ABB. |
|------------------------------|---|--|---|----------------------|-------------------|---|------|
| FM (UKW)-EMPFANGSTEIL | | | | | | | |
| 1 | DISCRIMINATOR (DISKRIMINATOR) | (A) 98,1 MHz 0 Hub 60 dB μ (ANT-Eingang) | Ein Gleichstrom-Voltmeter an Stift 3 von TP1 anschließen. (TU1, X25-) | FM (UKW) 98,1 MHz | T301 (TU1, X25-) | 0 V | (a) |
| 2 | SOFT MUTE LEVEL (GERÄUSCH-DÄMPFUNGSPEGEL) | (A) 98,1 MHz 1 kHz \pm 40 kHz Hub 60 dB μ - kein Eingang | (B) | FM (UKW) 98,1 MHz | VR303 (TU1, X25-) | Unter der Annahme, daß der Ausgang 0 dB bei einem Eingang von 60 dB beträgt, so einstellen, daß der Ausgangspegel -25 dB ist. | |
| 3 | SEPARATION (TRENNUNG) | (C) 98,1 MHz 1 kHz \pm 40 kHz Hub Pilot: \pm 6,0 kHz Hub Wähler: L oder R 60 dB μ (ANT-Eingang) | (B) | FM (UKW) 98,1 MHz | VR302 (TU1, X25-) | So einstellen, daß das Übersprechen von L zu R und von R zu L minimal wird. | |
| 4 | ANRC | (C) 98,1 MHz 1 kHz \pm 40 kHz Hub Pilot: \pm 6,0 kHz Hub Wähler: L oder R 35 dB μ (ANT-Eingang) | (B) | FM (UKW) 98,1 MHz | VR301 (TU1, X25-) | Trennung 10 dB | |
| 5 | SEEK STOP LEVEL (SUCHLAUF-STOPPEGEL) | (A) 98,1 MHz 0 Hub 20 dB μ (ANT-Eingang) | TESTMODUS: EIN | FM (UKW) 98,1 MHz | VR1 (X25-) | So einstellen, daß die Anzeige "►■" auf der Frontplatte leuchtet. Nur "►" leuchtet: zu niedrig Nur "■" leuchtet: zu hoch | |
| 6 | MUTE LEVEL (DÄMPFUNGSPEGEL) | (A) 98,1 MHz 0 Hub 5 dB μ (ANT-Eingang) | TESTMODUS: EIN | FM (UKW) 98,1 MHz | VR304 (TU1, X25-) | So einstellen, daß die Anzeige "SCN" auf der Frontplatte leuchtet. | |
| AM (MW)-EMPFANGSTEIL | | | | | | | |
| [1] | SEEK STOP LEVEL (SUCHLAUF-STOPPEGEL) | (D) 999 kHz 0% Modulation 35 dB μ (ANT-Eingang) | - | AM (MW) 999 kHz | VR201 (TU1, X25-) | STOPP | |

*Die CD-Servoeinheit (X32-) ist einstellungs frei.
Es gibt keinen Punkt, der eingestellt werden muß.

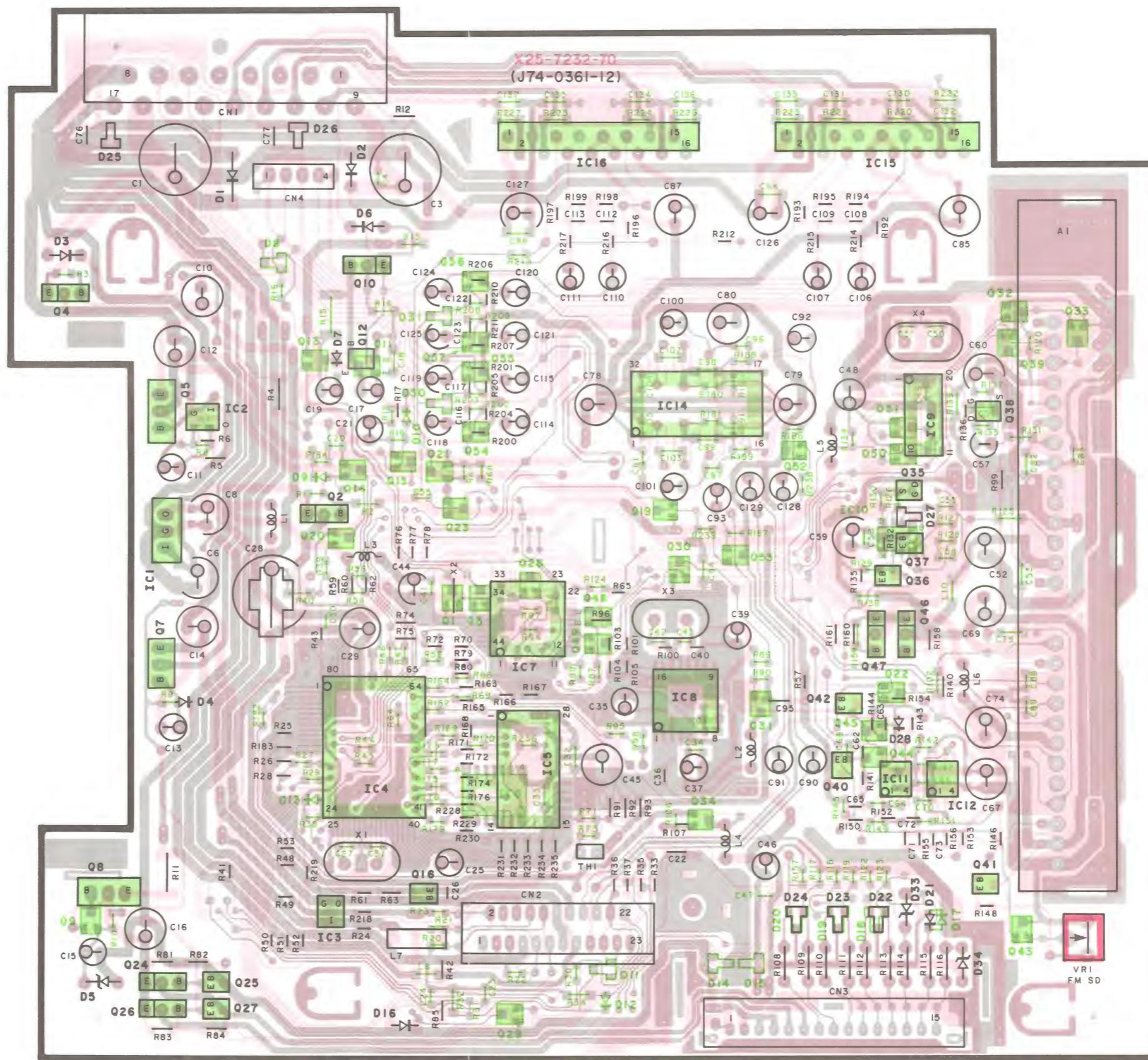
*Testmodus : Die Spannungsversorgung einschalten, während die Tasten **▲** und **PYT** gedrückt gehalten werden. (Alle Elemente des Flüssigkristalldisplays leuchten.)
Dann die Taste **SRC** drücken.
Deaktivieren : Spannungsversorgung ausschalten.

PC BOARD (Component side view)

SWITCH UNIT (X13-8662-70)



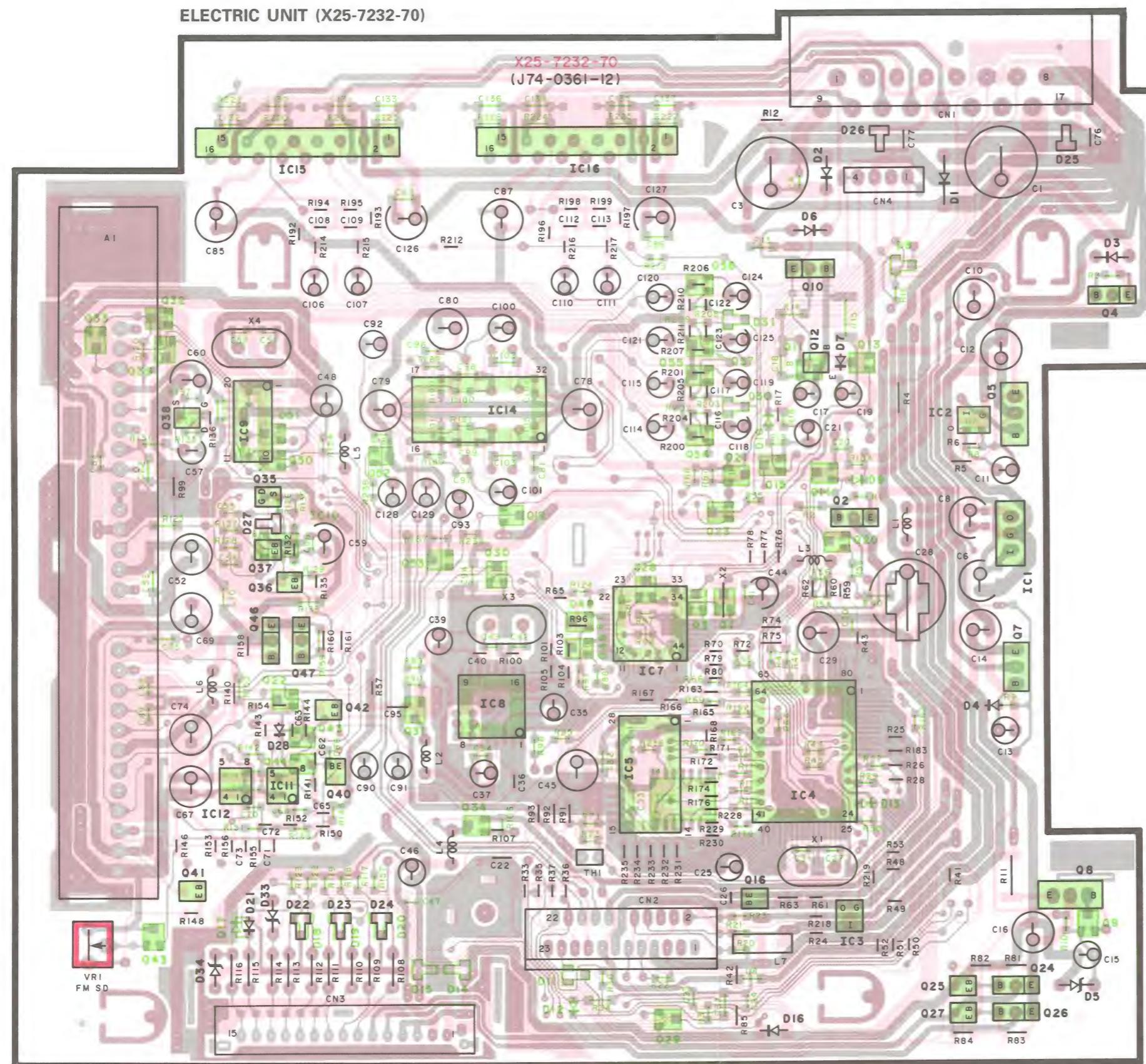
ELECTRIC UNIT (X25-7232-70)



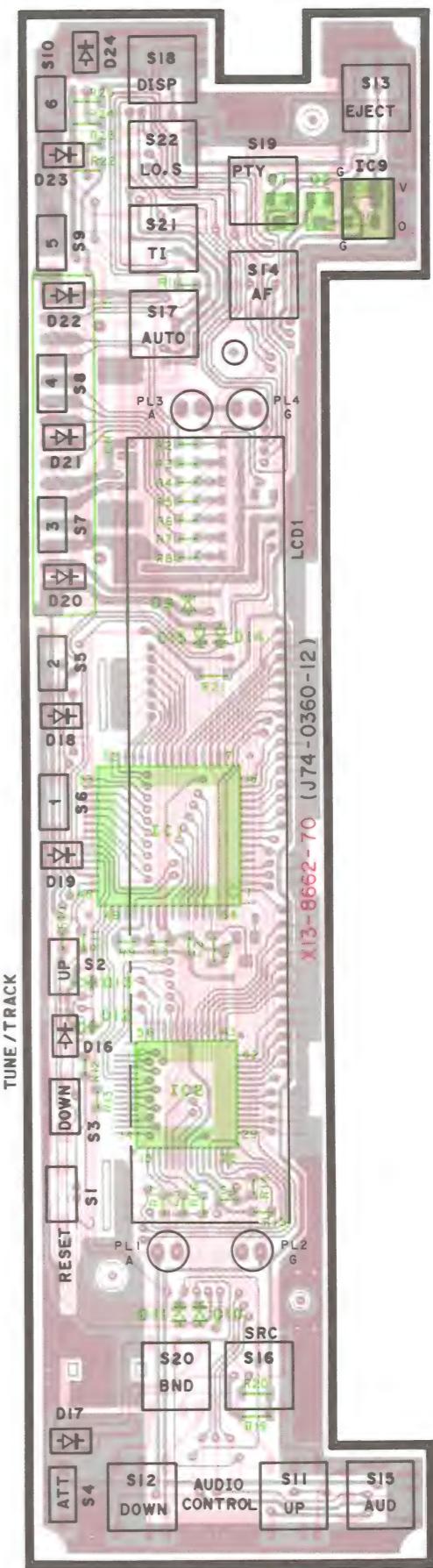
PC BOARD (Foil side view)

SWITCH UNIT (X13-8662-70)

ELECTRIC UNIT (X25-7232-70)

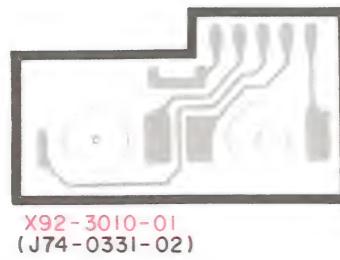


Refer to the schematic diagram for the values of resistors and capacitors



PC BOARD (Component side view)

MECHANISM Ass'y
(X92-3010-01)



CD PLAYER UNIT
(X32-4010-00)

X32-4010-00 (J74-0330-32)

Spindle motor output
SP+ "H" : Forward rotation of disc
SP- "H" : Backward rotation of disc
Oscilloscope

Loading motor output
LO+ "H" : Direction of eject
LO- "H" : Direction of loading
Oscilloscope

Sled motor output
SL+ "H" : Direction of outside
SL- "H" : Direction of inside
Oscilloscope

Refer to the schematic diagram for the values of resistors and capacitors.

STP
Sled switch (S1)
"H" : Switch off
"L" : Switch on

VREF About 2.5V
DC voltmeter

FE Focus error signal
Oscilloscope

TE2 Tracking error signal (after low range boost up)
Oscilloscope

TE1 Tracking error signal
Oscilloscope

ARF 1.2Vp-p RF signal (after AGC)
Oscilloscope

RF 0.8Vp-p RF signal
Oscilloscope

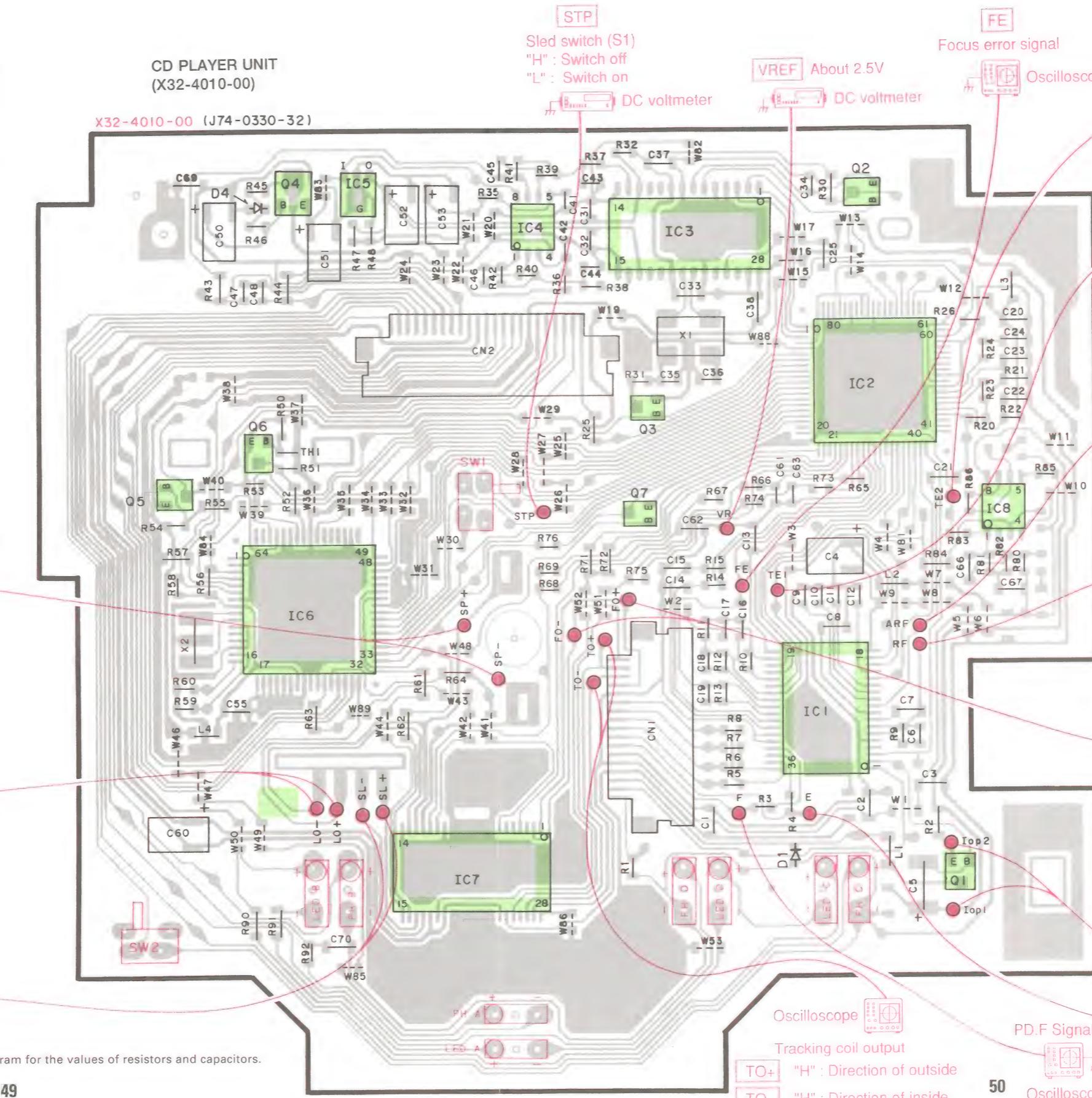
Focus coil output
FO+ "H" : Direction of disc
FO- "H" : Direction away disc
Oscilloscope

lop1 (+5V)
lop2
Laser current measurement
Less than 0.5V : normal
DC voltmeter

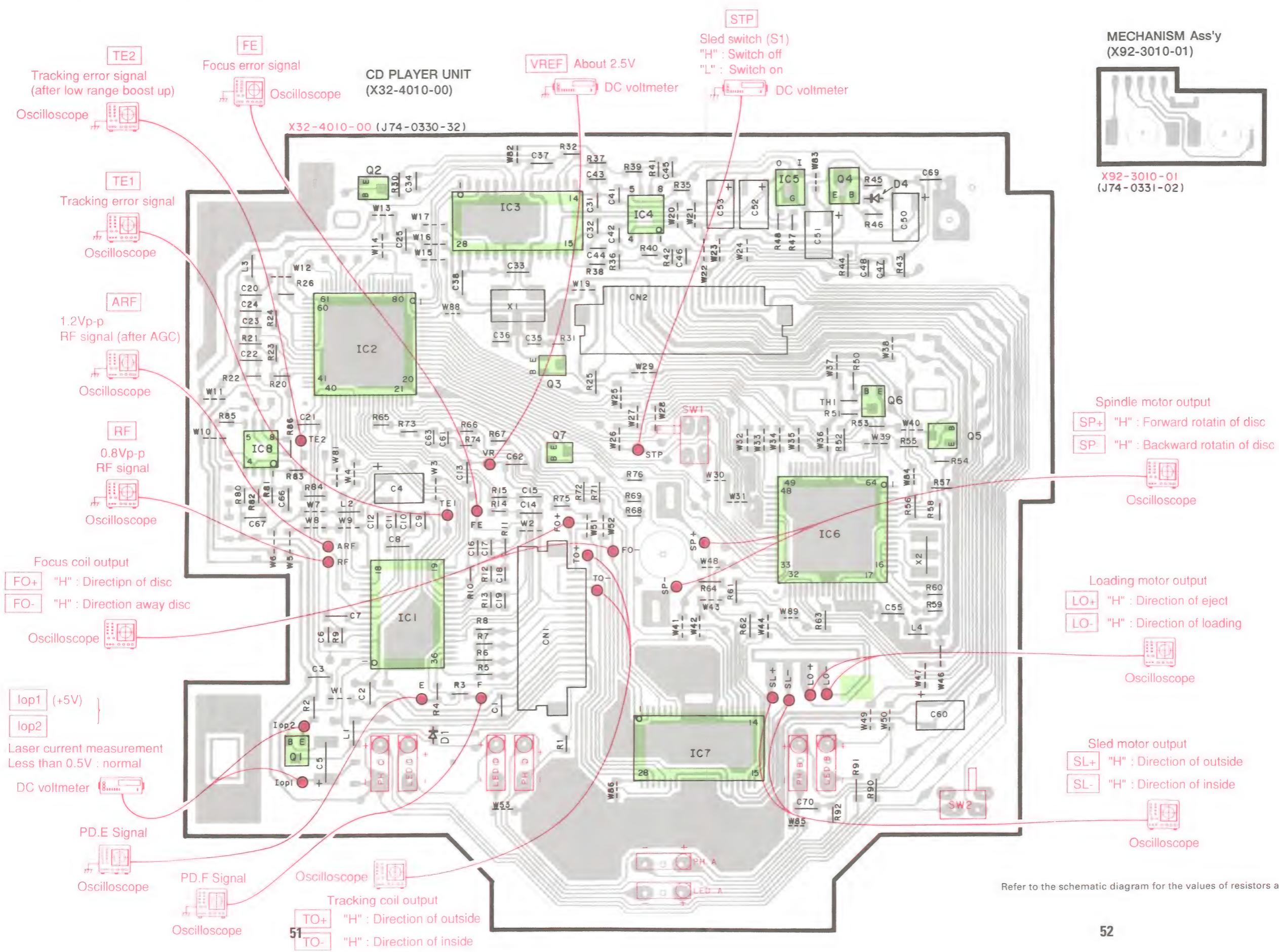
PD.E Signal
Oscilloscope

PD.F Signal
Oscilloscope

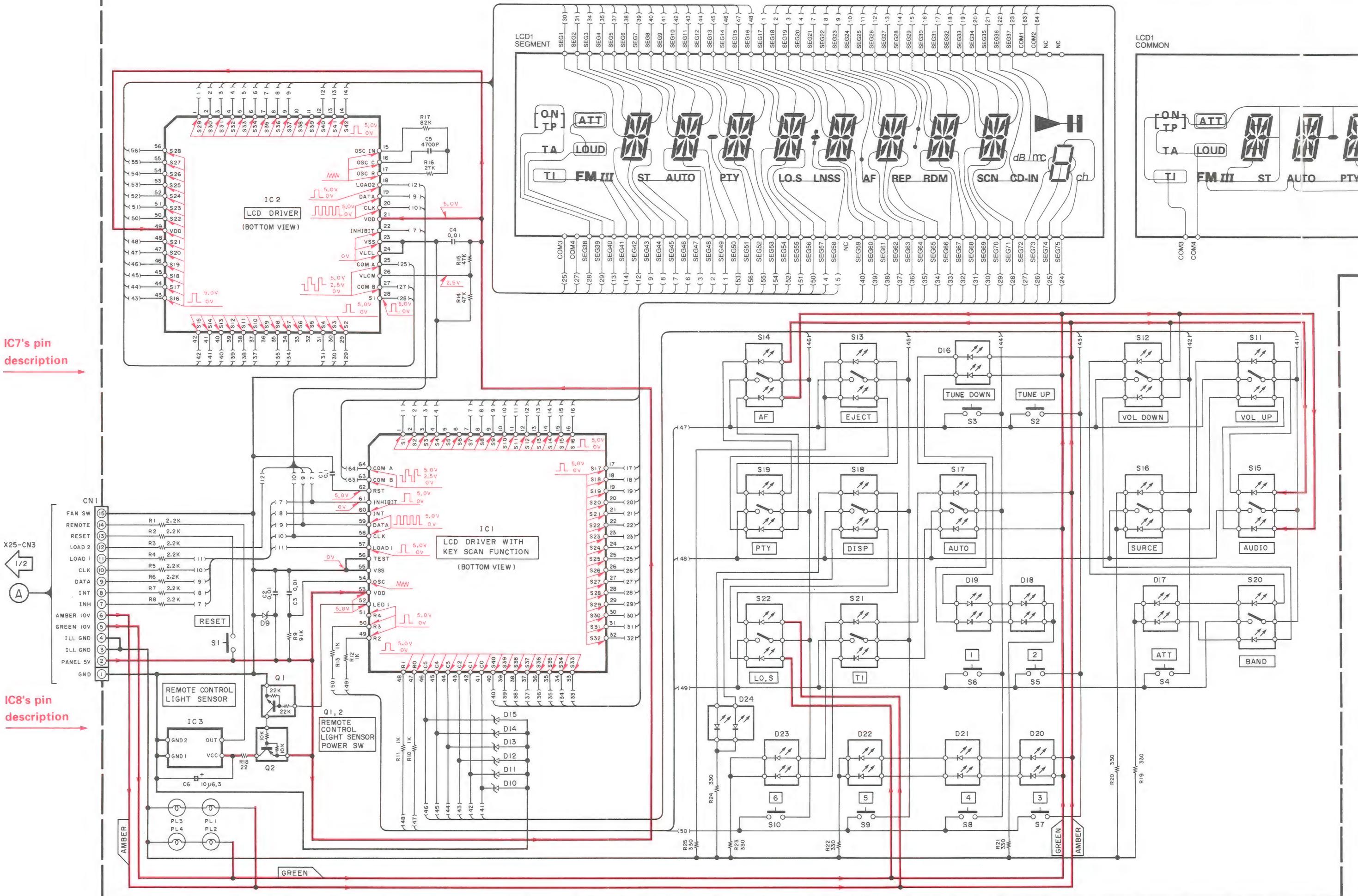
Tracking coil output
TO+ "H" : Direction of outside
TO- "H" : Direction of inside
Oscilloscope

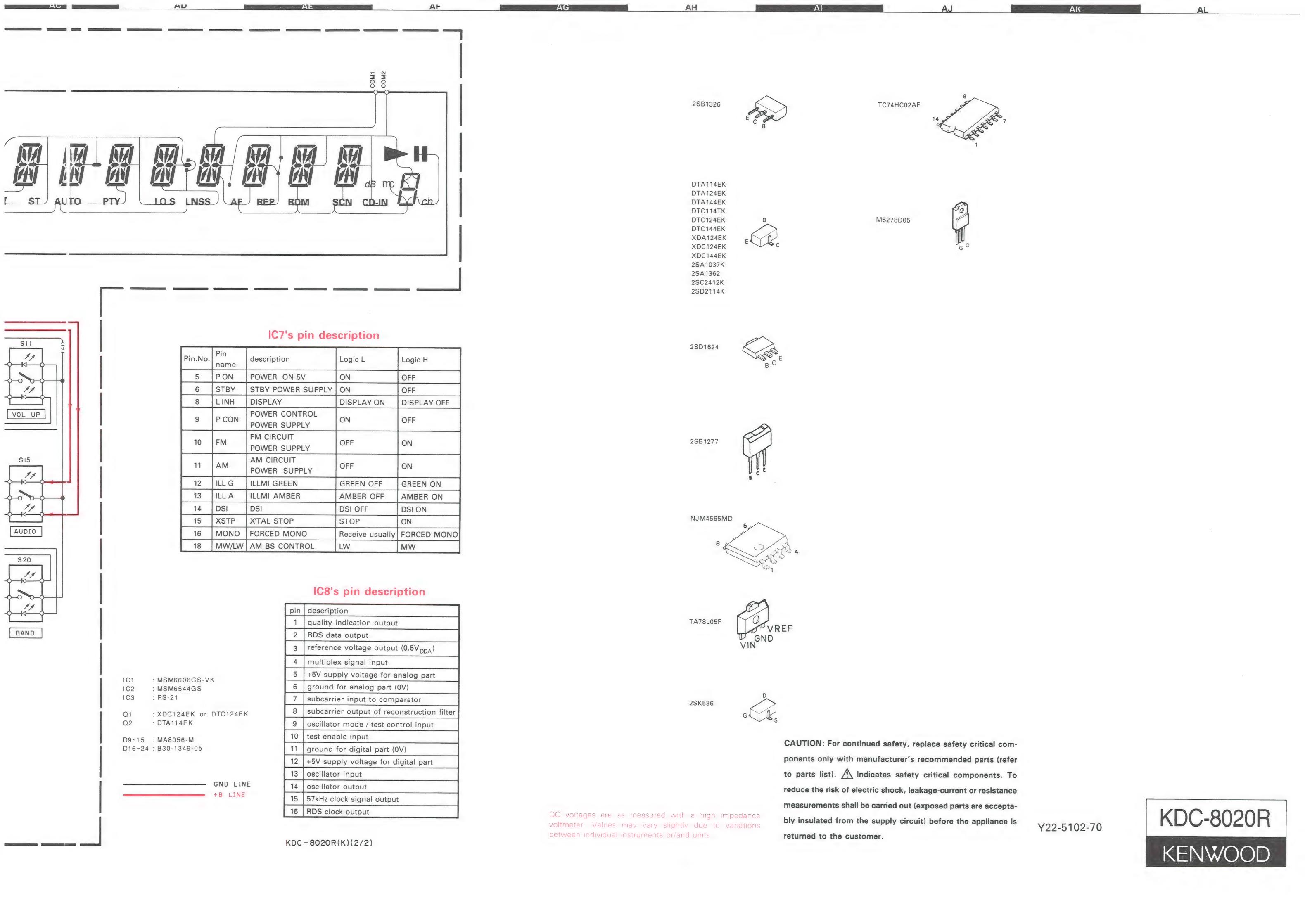


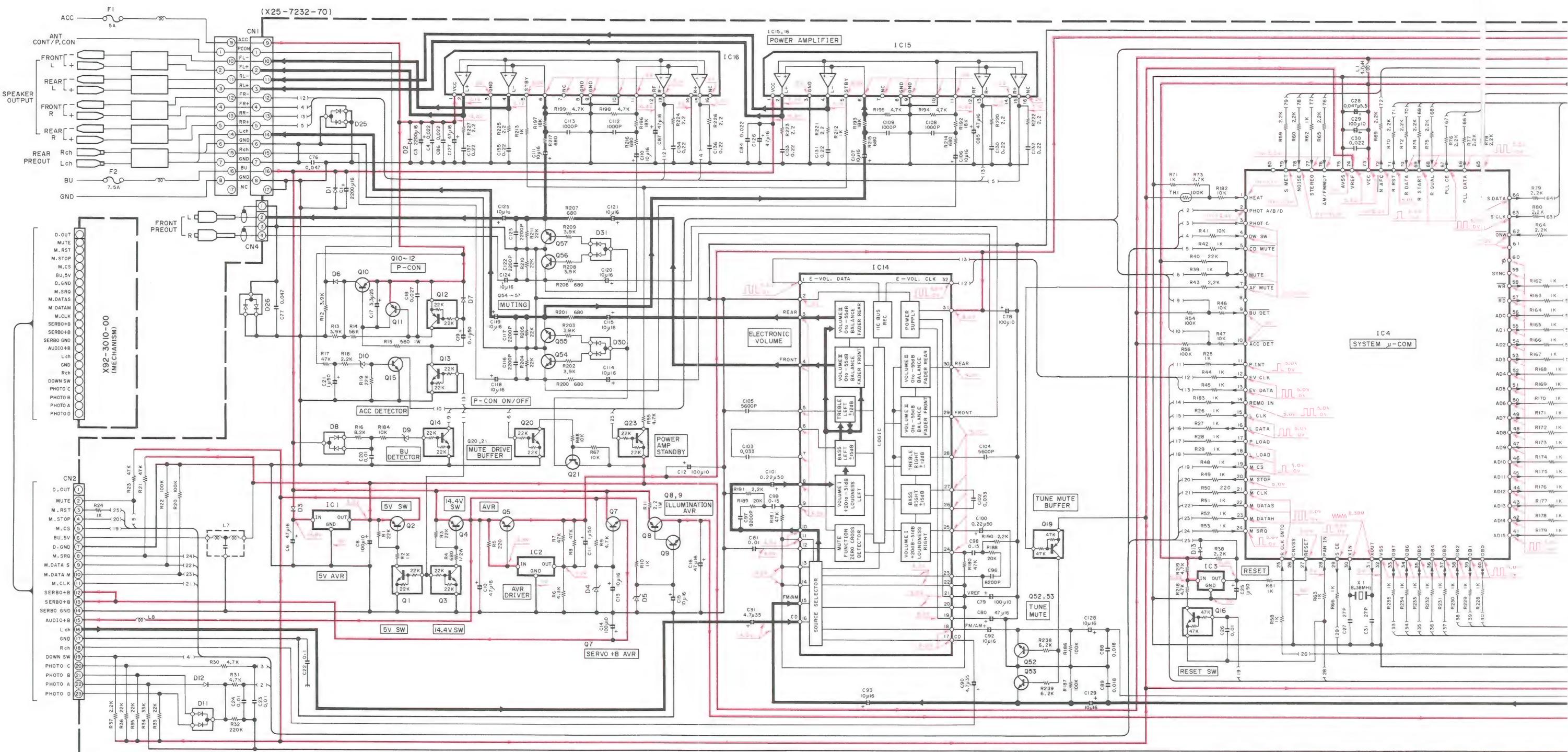
PC BOARD (Foil side view)



Refer to the schematic diagram for the values of resistors and capacitors.



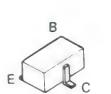




2SB1326



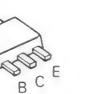
| | |
|----------|----------|
| DTA114EK | XDC124EK |
| DTA124EK | XDC144EK |
| DTA144EK | 2SA1037K |
| DTC114TK | 2SA1362 |
| DTC124EK | 2SC2412K |
| DTC144EK | 2SD2114K |
| XDA124EK | |



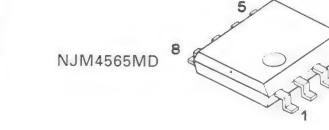
A 3D perspective drawing of a rectangular block. The top vertex is labeled 'B', the bottom-left vertex is labeled 'E', and the bottom-right vertex is labeled 'C'.



2SD1624



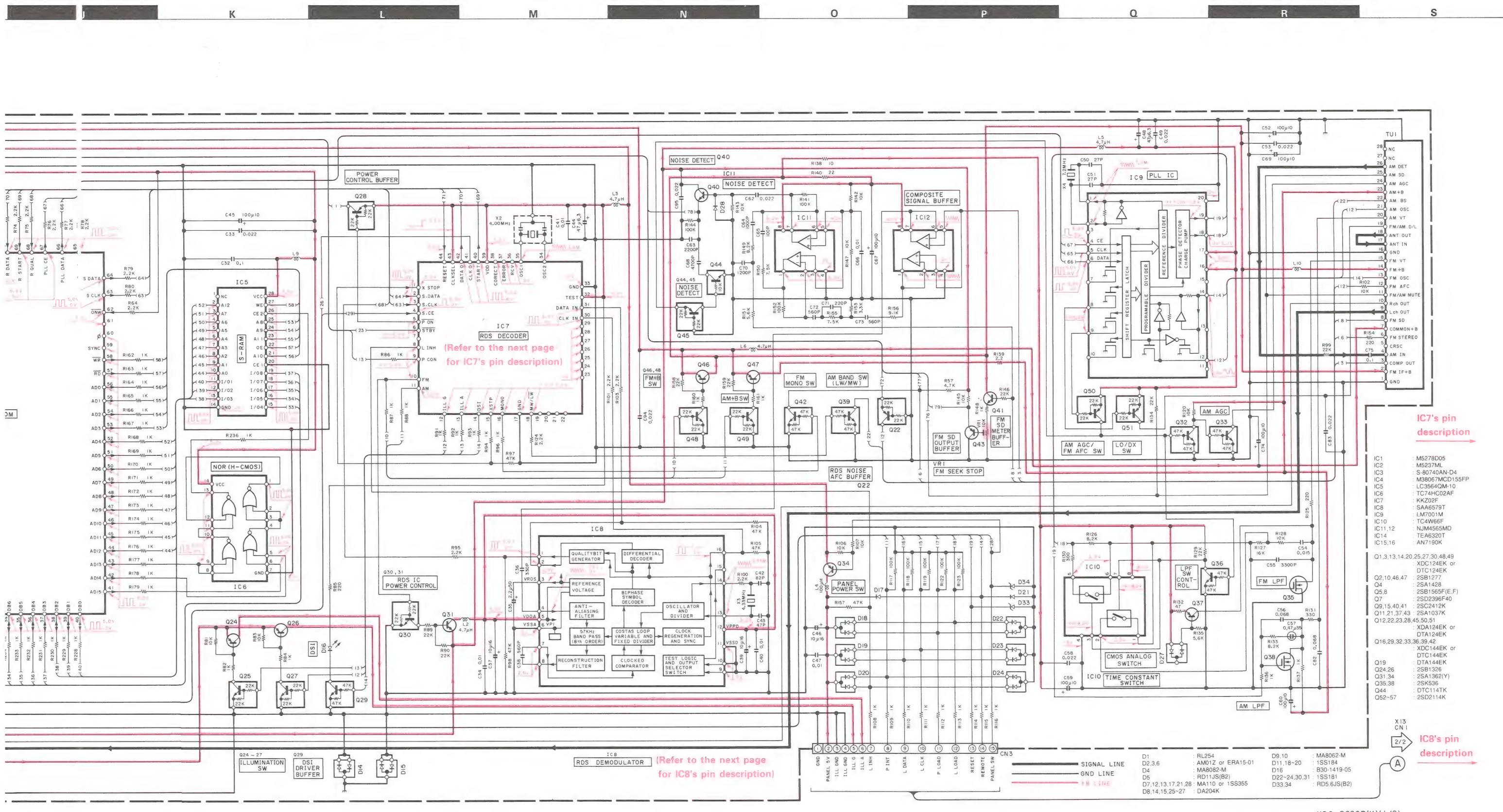
RSB1277



NJM4565MD 8 5 1



M5278D05

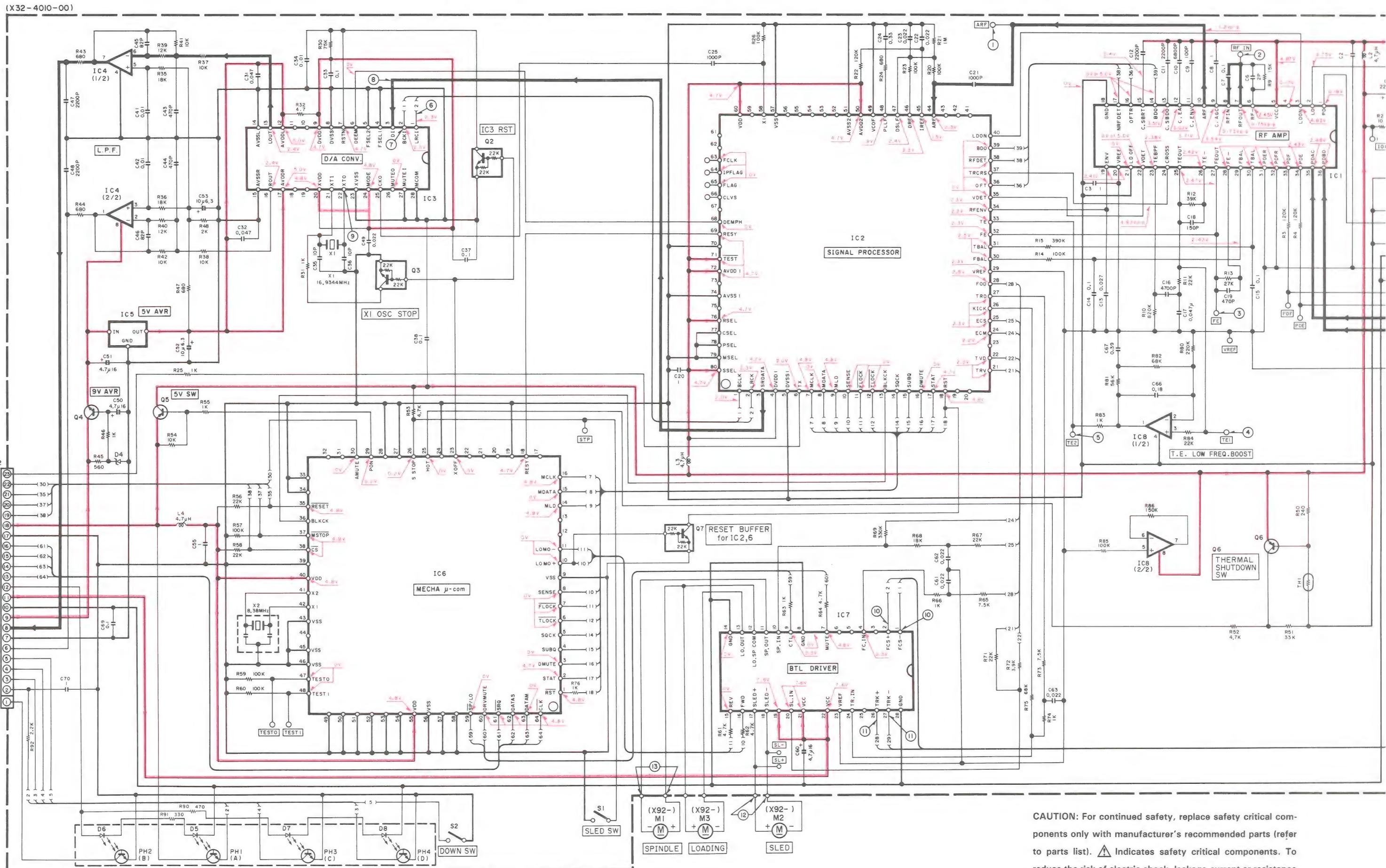


CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

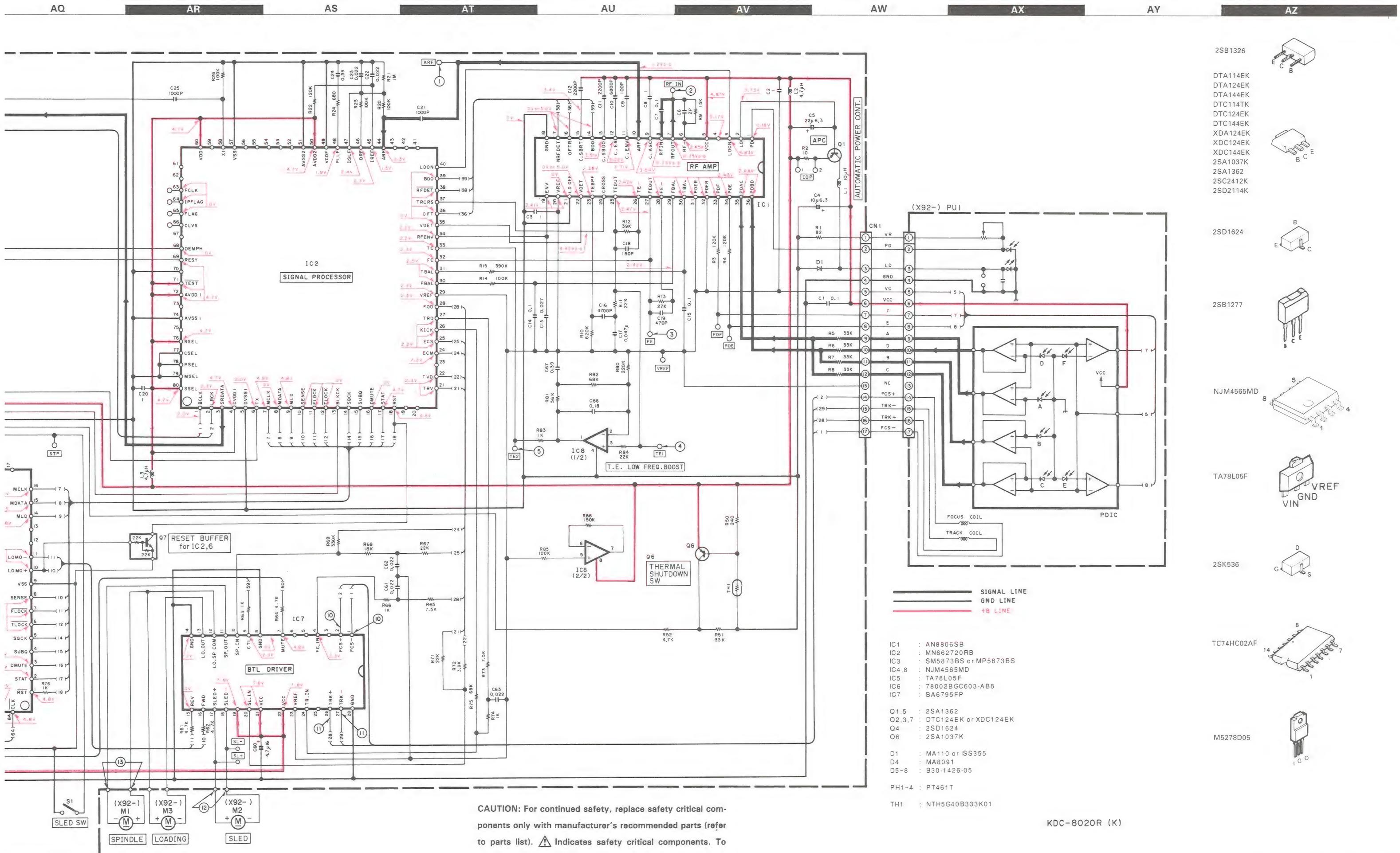
Y22-5102-70

KDC-8020R

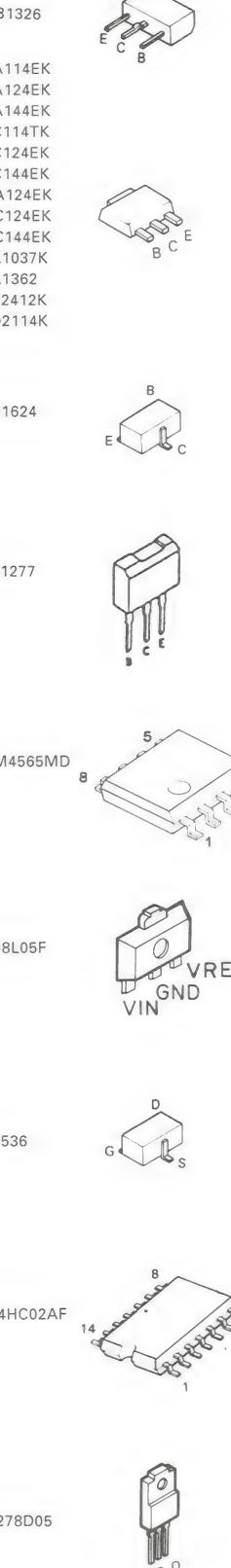
KENWOOD



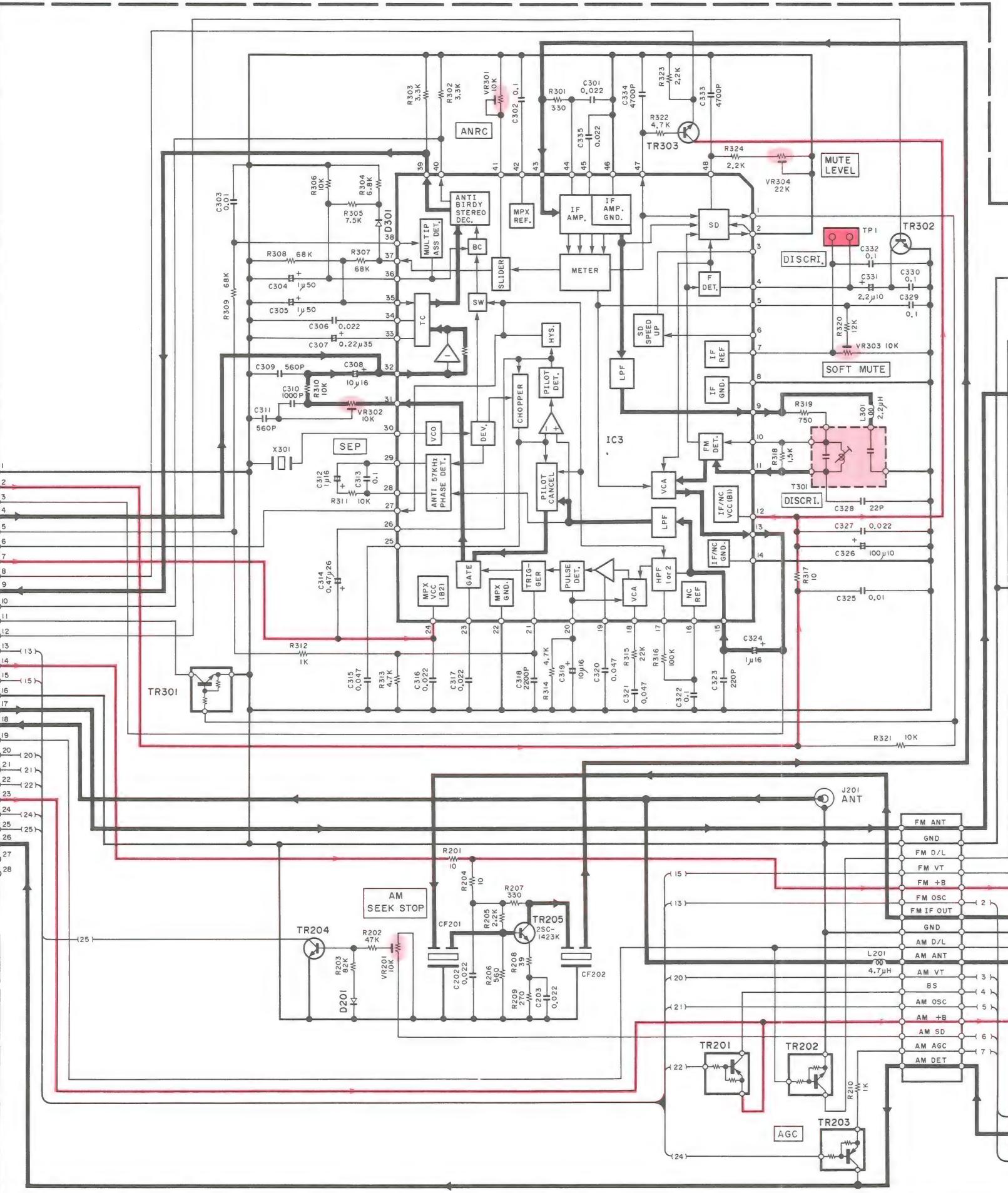
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



KDC-8020R
KENWOOD

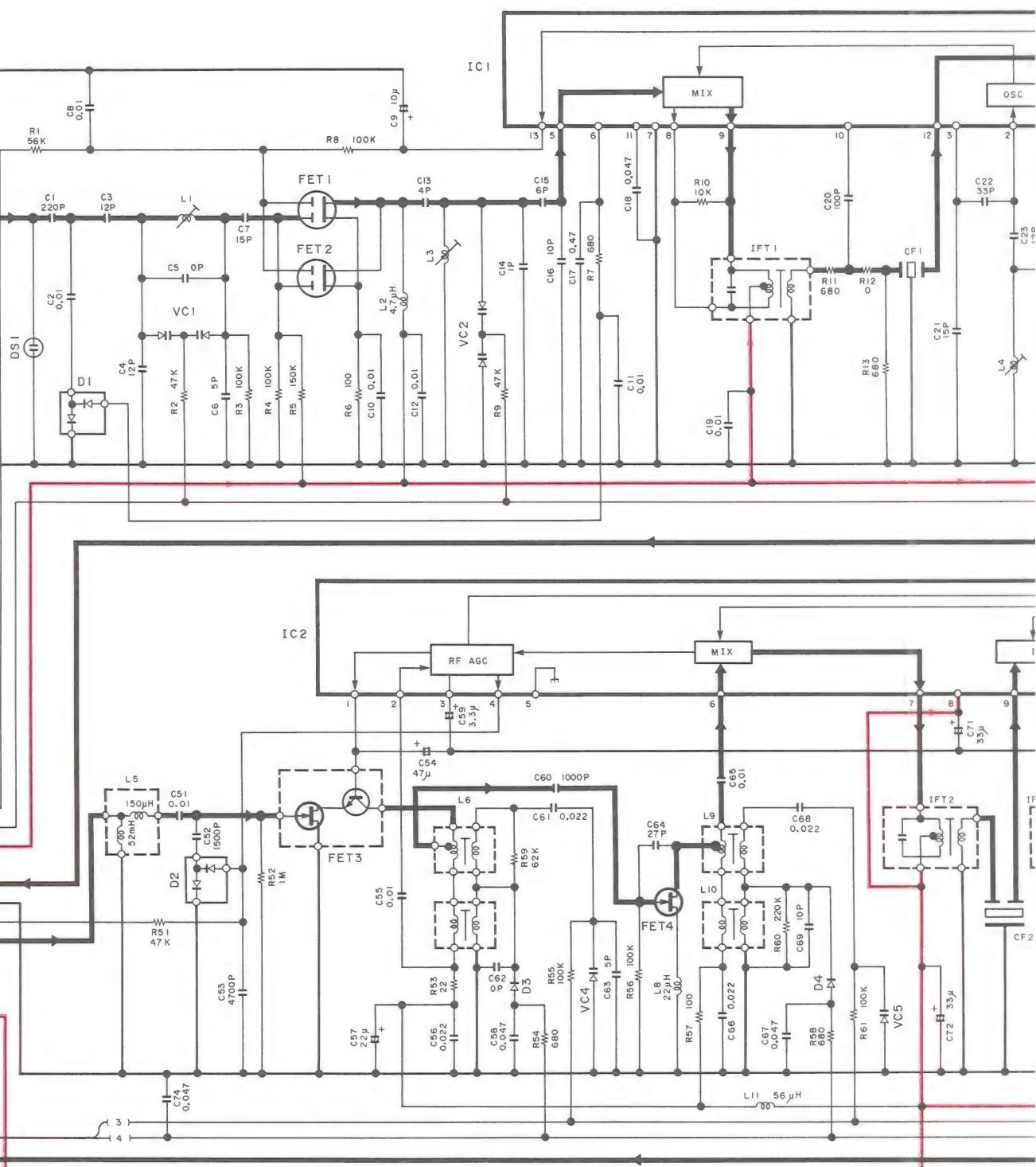


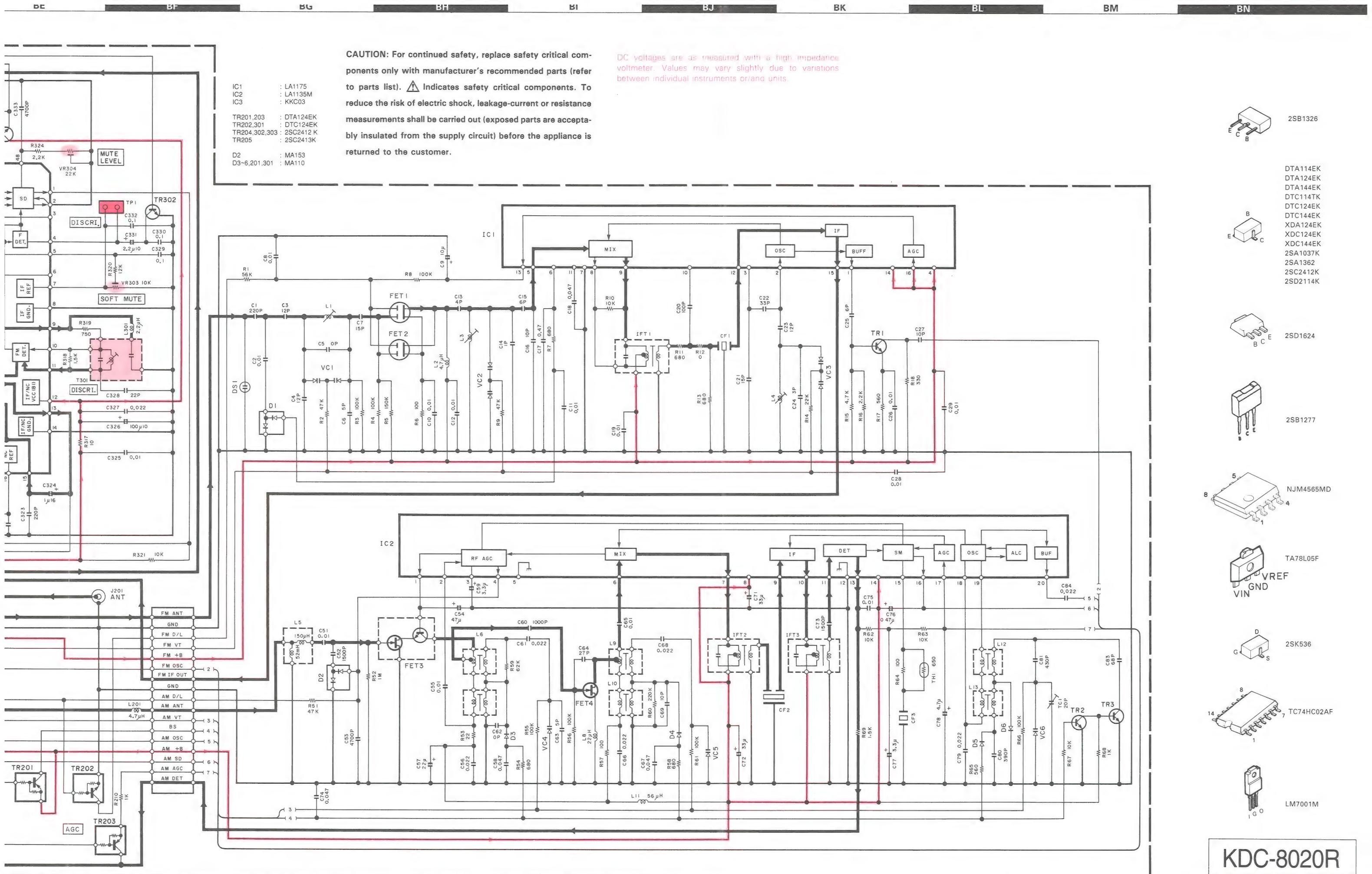
X25 - 1 TU



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high-voltmeter. Values may vary slightly due to between individual instruments or/and units.





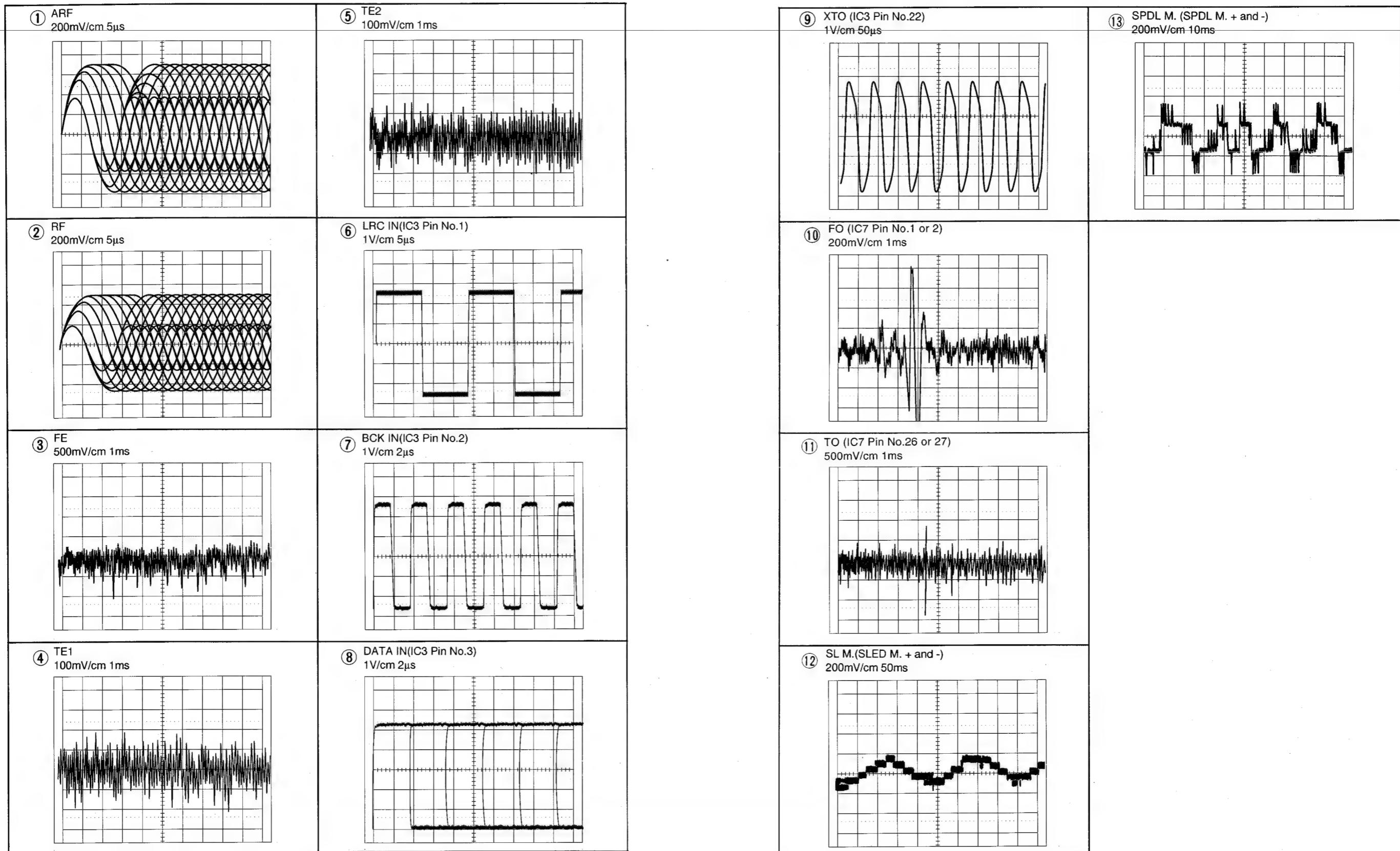
KDC-8020R
KENWOOD

KDC-8020R(K) TUI

KDC-8020R KDC-8020R

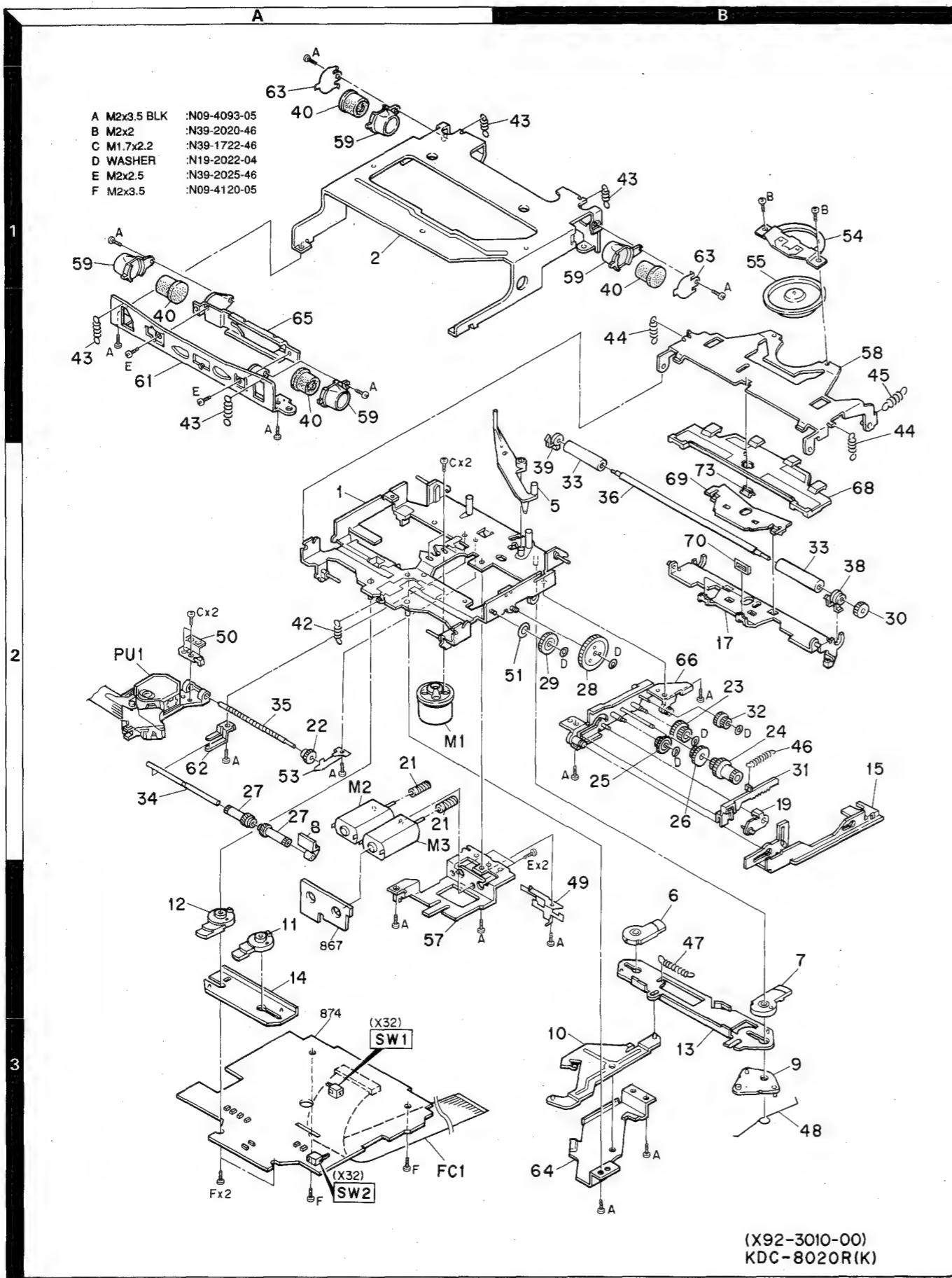
ADJUSTMENT (MECHANISM)

Wave form: Photo No. → Refer to SCHEMATIC DIAGRAM (X32-4010-00)



KDC-8020R

EXPLODED VIEW (MECHANISM)

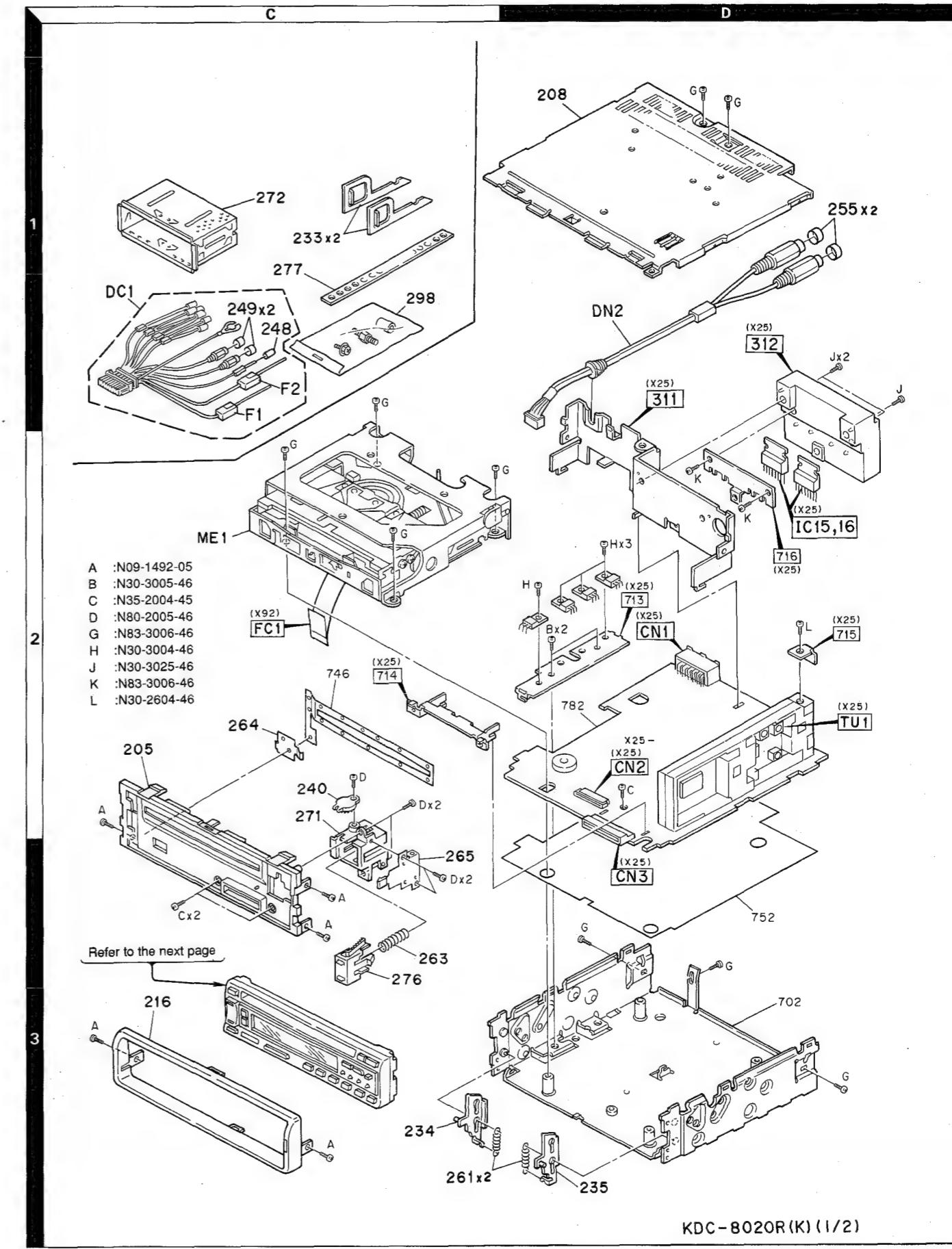


Parts with the exploded numbers larger than 700 are not supplied

69

KDC-8020R

EXPLODED VIEW (UNIT)



Parts with the exploded numbers larger than 700 are not supplied

70

KDC-8020R

EXPLODED VIEW (PANEL)

KDC-8020R (K) (2/2)

Parts with the exploded numbers larger than 700 are not supplied.

KDC-8020R

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | Desti- nation 仕 向 | Re- marks 備考 |
|------------------|----------------|-------------------|-------------------|---------------------------------|-------------------------|--------------------|
| KDC-8020R | | | | | | |
| 205 | 2C | * | A22-1234-31 | SUB PANEL | | |
| 206 | 1F | * | A46-1225-43 | REAR COVER ASSY | | |
| 208 | 1D | * | A52-0674-22 | TOP COVER | | |
| PA1 | 3E | * | A64-0348-22 | PANEL ASSY | | |
| 216 | 3C | | B07-2041-01 | ESCUTCHEON | | |
| 218 | 3E | * | B07-2051-23 | ESCUTCHEON ASSY (on PANEL) | | |
| 222 | 3F | | B10-1586-04 | FRONT GLASS (for REMOTE CONTR.) | | |
| 224 | 2F | | B19-0986-03 | LIGHTING BOARD | | |
| 229 | 3E | | B43-1210-04 | KENWOOD BADGE | | |
| - | | | B46-0100-30 | WARRANTY CARD | | |
| - | | | B46-0182-14 | ID CARD | | |
| - | | * | B64-0408-00 | INST. MANUAL (ENGLISH, FRENCH) | | |
| - | | * | B64-0409-00 | INST. MANUAL (GERMAN, NETHER.) | | |
| - | | * | B64-0410-00 | INST. MANUAL (ITALIAN, SPANISH) | | |
| 233 | 1C | | D10-2834-04 | LEVER (REMOVAL TOOL) | | |
| 234 | 3C | | D10-2839-04 | LEVER ASSY (left side of chass) | | |
| 235 | 3D | | D10-2840-04 | LEVER ASSY (right side of chas) | | |
| 240 | 2C | | D39-0211-05 | DAMPER | | |
| DC1 | 1C | | E30-4150-05 | DC CORD ASSY | | |
| DN2 | 1D | * | E30-4172-05 | CORD WITH PLUG | | |
| 248 | 1C | | F29-0604-15 | CAP (for ANT.CONT.CORD) | | |
| 249 | 1C | | F29-0049-05 | CAP (for REAR PRE-OUT CORDs) | | |
| 255 | 1D | | F29-0049-05 | CAP (for FRONT PRE-OUT CORDs) | | |
| F1 | 1C | | F06-5024-05 | FUSE (5A) (for ACC) | | |
| F2 | 1C | | F05-7521-05 | FUSE (7.5A) (for B.U.) | | |
| 261 | 3C | | G01-2691-04 | EXTENSION SPRING | | |
| 262 | 3F | | G01-2692-14 | COMPRESSION SPRING | | |
| 263 | 3C | | G01-2694-04 | COMPRESSION SPRING | | |
| 264 | 2C | | G02-1161-04 | SPRING | | |
| 265 | 3C | | G02-1181-23 | FLAT SPRING | | |
| 267 | 2F | * | G11-1642-03 | CUSHION (for PANEL ASSY) | | |
| - | | * | H10-4439-12 | POLYSTYRENE FOAMED FIXTURE | | |
| - | | | H25-0329-04 | PROTECTION BAG (280X450X0.03) | | |
| - | | | H25-0337-04 | PROTECTION BAG (180X300X0.03) | | |
| - | | * | H54-0230-04 | ITEM CARTON CASE | | |
| - | | * | H64-0253-04 | OUTER CARTON CASE | | |
| 271 | 2C | * | J19-4548-02 | HOLDER | | |
| 272 | 1C | | J21-7473-01 | MOUNTING HARDWARE (M.SLEEVE) | | |
| 276 | 3C | | J52-0037-14 | MAGNET CATCH | | |
| 277 | 1C | | J54-0059-04 | STAY | | |
| 281 | 3F | * | K24-1532-04 | KNOB (1) | | |
| 282 | 3F | * | K24-1533-04 | KNOB (2) | | |
| 283 | 3F | * | K24-1534-04 | KNOB (3) | | |
| 284 | 3F | * | K24-1535-04 | KNOB (4) | | |
| 285 | 3F | | K24-1504-04 | KNOB (5) | | |
| 286 | 3F | * | K24-1537-04 | KNOB (6) | | |
| 287 | 2E | | K24-1496-04 | KNOB (AUD) | | |
| 288 | 3E | | K24-1497-04 | KNOB (ATT) | | |
| 289 | 3E | * | K24-1531-04 | KNOB (BND) | | |
| 290 | 3F | | K24-1506-04 | KNOB (AUTO/TPS, TI, L0.S, DISP) | | |
| 291 | 3F | | K24-1507-04 | KNOB (EJECT) | | |

L:Scandinavia

Y:PX(Far East, Hawaii)

Y:AAFES(Europe)

K:USA

T:England

X:Australia

P:Canada

E:Europe

M:Other Areas

R:Mexico

G:Germany

72

△ indicates safety critical components.

PARTS LIST

* New Parts

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Teile ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名 / 規格 | Desti- nation 仕 向 | Re- marks 備考 |
|------------------|----------------|-------------------|-------------------|--------------------------------|-------------------------|--------------------|
| 292 | 3E | | K24-1508-04 | KNOB (RESET) | | |
| 293 | 3F | | K24-1509-24 | KNOB (RELEASE) | | |
| 294 | 2E | | K24-1519-04 | KNOB (SRC) | | |
| 295 | 2E | | K25-0620-04 | KNOB (AUDIO CONTROL) | | |
| 296 | 3F | * | K25-0655-04 | KNOB (TUNE/TRACK) | | |
| 297 | 3F | * | K25-0654-04 | KNOB (AF/PTY) | | |
| 298 | 1C | * | N99-1615-05 | SCREW SET | | |
| A | 2C, 3C | | N09-1492-05 | MACHINE SCREW (2.6X3.5, 18°) | | |
| B | 2D | | N30-3005-46 | PAN HEAD MACHINE SCREW | | |
| C | 2D, 3C | | N35-2004-45 | BINDING HEAD MACHINE SCREW | | |
| D | 2C, 3C | | N80-2005-46 | PAN HEAD TAPITIE SCREW | | |
| E | 2F | | N80-2006-46 | PAN HEAD TAPITIE SCREW (PANEL) | | |
| F | 1E, 1F | | N80-2008-46 | PAN HEAD TAPITIE SCREW | | |
| G | 1D, 2C | | N83-3006-46 | PAN HEAD TAPITIE SCREW | | |
| M | 1F | | N80-2010-45 | PAN HEAD TAPITIE SCREW | | |
| ME1 | 2C | | X92-3010-00 | MECHANISM ASSY | | |

SWITCH UNIT (X13-8662-70)

| | | | | | | |
|---------|----|---|--------------|---------------------|--|--|
| 301 | 2F | | B11-0875-04 | OPTICAL DIFFUSER | | |
| 302 | 1E | | B19-0987-03 | LIGHTING BOARD | | |
| D16 -24 | | | B30-1349-05 | LED | | |
| LCD1 | 2E | * | B38-0613-05 | LIQUID CRYSTAL | | |
| PL1 | | | B30-1305-05 | LAMP (5.5V .125A) | | |
| PL2 | | | B30-1306-05 | LAMP (5.5V .125A) | | |
| PL3 | | | B30-1305-05 | LAMP (5.5V .125A) | | |
| PL4 | | | B30-1306-05 | LAMP (5.5V .125A) | | |
| C1 | | | CK73BB1H104K | CHIP C 0.10UF K | | |
| C2 -4 | | | CK73FB1H103K | CHIP C 0.010UF K | | |
| C5 | | | CK73FB1H472K | CHIP C 4700PF K | | |
| C6 | | | C92-0509-05 | CHIP TAN 10UF 6.3WV | | |
| 304 | 2E | | E29-1440-04 | CONDUCTIVE RUBBER | | |
| CN1 | | | E59-0815-05 | RECTANGULAR PLUG | | |
| 305 | 2E | * | J19-4549-03 | HOLDER | | |
| R1 -8 | | | RK73FB2A222J | CHIP R 2.2K J 1/10W | | |
| R9 | | | RK73FB2A913J | CHIP R 91K J 1/10W | | |
| R10 -13 | | | RK73FB2A102J | CHIP R 1.0K J 1/10W | | |
| R14 ,15 | | | RK73FB2A473J | CHIP R 47K J 1/10W | | |
| R16 | | | RK73FB2A273J | CHIP R 27K J 1/10W | | |
| R17 | | | RK73FB2A823J | CHIP R 82K J 1/10W | | |
| R18 | | | RK73BB2B220J | CHIP R 22 J 1/8W | | |
| R19 -25 | | | RK73BB2B331J | CHIP R 330 J 1/8W | | |
| S1 -10 | | | S70-0815-05 | TACT SWITCH | | |
| S11 -22 | | | S40-1606-05 | PUSH SWITCH | | |
| D9 -15 | | | MA8056-M | ZENER DIODE | | |
| IC1 | | | MSM6606GS-VK | IC | | |
| IC2 | | | MSM6544GS | ANALOGUE IC | | |
| IC3 | | | RS-21 | IC(RIMOCON SENSQR) | | |
| Q1 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q1 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q2 | | | DTA114EK | DIGITAL TRANSISTOR | | |

L:Scandinavia

K:USA

P:Canada

R:Mexico

Y:PX(Far East, Hawaii)

T:England

E:Europe

G:Germany

Y:AAFES(Europe)

X:Australia

M:Other Areas

△ indicates safety critical components.

KDC-8020R

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

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Telle ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | | | | Desti- nation 仕 向 | Re- marks 備考 |
|------------------------------------|----------------|-------------------|-------------------|-----------------------|---------|-------|--|-------------------------|--------------------|
| ELECTRIC UNIT (X25-7232-70) | | | | | | | | | |
| 311 | 1D | * | A84-0047-03 | REAR PANEL | | | | | |
| D16 | | | B30-1419-05 | LED (for DSI) | | | | | |
| C1 | | | C90-2765-05 | ELECTRØ | 2200UF | 16WV | | | |
| C3 | | | C90-2765-05 | ELECTRØ | 2200UF | 16WV | | | |
| C4 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | | |
| C6 | | | CE04CW1C470M | ELECTRØ | 47UF | 16WV | | | |
| C8 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C10 | | | CE04CW1C470M | ELECTRØ | 47UF | 16WV | | | |
| C11 | | | CE04CW1H010M | ELECTRØ | 1.0UF | 50WV | | | |
| C12 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C13 | | | CE04CW1C100M | ELECTRØ | 10UF | 16WV | | | |
| C14 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C15 | | | CE04CW1C100M | ELECTRØ | 10UF | 16WV | | | |
| C16 | | | CE04CW1C470M | ELECTRØ | 47UF | 16WV | | | |
| C17 | | | CE04CW1E3R3M | ELECTRØ | 3.3UF | 25WV | | | |
| C18 | | | CK73EB1H273K | CHIP C | 0.027UF | K | | | |
| C19 | | | CE04CW1H0R1M | ELECTRØ | 0.1UF | 50WV | | | |
| C20 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C21 | | | CE04CW1H010M | ELECTRØ | 1.0UF | 50WV | | | |
| C22 | | | CK73EB1H104K | CHIP C | 0.10UF | K | | | |
| C23 , 24 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C25 | | | CE04CW1H010M | ELECTRØ | 1.0UF | 50WV | | | |
| C26 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C27 | | | CC73FCH1H270J | CHIP C | 27PF | J | | | |
| C28 | | | C90-1827-05 | ELECTRØ | 0.047UF | 5.5WV | | | |
| C29 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C30 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | | |
| C31 | | | CC73FCH1H270J | CHIP C | 27PF | J | | | |
| C32 | | | CK73EB1H104K | CHIP C | 0.10UF | K | | | |
| C33 | | | CK73EB1H223K | CHIP C | 0.022UF | K | | | |
| C34 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C35 | | | CE04CW1H2R2M | ELECTRØ | 2.2UF | 50WV | | | |
| C36 | | | CK73FB1H331K | CHIP C | 330PF | K | | | |
| C37 | | | CE04CW1C100M | ELECTRØ | 10UF | 16WV | | | |
| C38 | | | CK73FB1H561K | CHIP C | 560PF | K | | | |
| C39 | | | CE04CW1C100M | ELECTRØ | 10UF | 16WV | | | |
| C40 , 41 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C42 | | | CC73FCH1H820J | CHIP C | 82PF | J | | | |
| C43 | | | CC73FCH1H470J | CHIP C | 47PF | J | | | |
| C44 | | | CE04CW0J470M | ELECTRØ | 47UF | 6.3WV | | | |
| C45 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C46 | | | CE04CW1C100M | ELECTRØ | 10UF | 16WV | | | |
| C47 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | | |
| C48 | | | CE04CW0J470M | ELECTRØ | 47UF | 6.3WV | | | |
| C49 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | | |
| C50 , 51 | | | CC73FCH1H270J | CHIP C | 27PF | J | | | |
| C52 | | | CE04CW1A101M | ELECTRØ | 100UF | 10WV | | | |
| C53 | | * | CK73EB1H223K | CHIP C | 0.022UF | K | | | |
| C54 | | * | C93-1055-05 | CERAMIC | 0.015UF | K | | | |
| C55 | | * | C93-1035-05 | CERAMIC | 3300PF | K | | | |
| C56 | | * | CK73EB1H683K | CHIP C | 0.068UF | K | | | |
| C57 | | * | C90-2807-05 | NP-ELECT | 0.47UF | 35WV | | | |

L:Scandinavia

Y:PX(Far East, Hawaii)

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G:Germany

PARTS LIST

x New Parts

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Teile ohne Parts No. werden nicht geliefert.

| Ref. No. | Address | New Parts | Parts No. | Description | | | Desti- nation | Re- marks |
|----------|---------|-----------|----------------|---------------------------------|---------|------|------------------|--------------|
| 参照番号 | 位置 | 新 | 部品番号 | 部品名 / 規格 | | | 仕向 | 備考 |
| C58 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | |
| C59 ,60 | | | CE04CW1A101M | ELECTRO | 100UF | 10WV | | |
| C62 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | |
| C63 | | | CK73FB1H222K | CHIP C | 2200PF | K | | |
| C64 | | | CK73FB1H102K | CHIP C | 1000PF | K | | |
| C65 | | | CC73FCH1H101J | CHIP C | 100PF | J | | |
| C66 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | |
| C67 | | | CE04CW1A101M | ELECTRO | 100UF | 10WV | | |
| C68 | | | CK73FB1H472K | CHIP C | 4700PF | K | | |
| C69 | | | CE04CW1A101M | ELECTRO | 100UF | 10WV | | |
| C70 | | | CK73FB1H122K | CHIP C | 1200PF | K | | |
| C71 | | | CK73FB1H221K | CHIP C | 220PF | K | | |
| C72 ,73 | | | CK73FB1H561K | CHIP C | 560PF | K | | |
| C74 | | | CE04CW1A101M | ELECTRO | 100UF | 10WV | | |
| C75 | | | CK73BB1H104K | CHIP C | 0.10UF | K | | |
| C76 ,77 | | | CK73EB1H473K | CHIP C | 0.047UF | K | | |
| C78 ,79 | | | CE04CW1A101M | ELECTRO | 100UF | 10WV | | |
| C80 | | | CE04CW1C470M | ELECTRO | 47UF | 16WV | | |
| C81 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | |
| C82 | | | CK73BB1H683K | CHIP C | 0.068UF | K | | |
| C83 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | |
| C84 | | | CK73EB1H223K | CHIP C | 0.022UF | K | | |
| C85 | | | CE04CW1C470M | ELECTRO | 47UF | 16WV | | |
| C86 | | | CK73EB1H223K | CHIP C | 0.022UF | K | | |
| C87 | | | CE04CW1C470M | ELECTRO | 47UF | 16WV | | |
| C88 ,89 | | | CK73FB1H183KTA | CHIP C | 0.018UF | K | | |
| C90 ,91 | | | CE04CW1V4R7M | ELECTRO | 4.7UF | 35WV | | |
| C92 ,93 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C94 ,95 | | | CK73EB1H223K | CHIP C | 0.022UF | K | | |
| C96 ,97 | | | CK73FB1H822K | CHIP C | 8200PF | K | | |
| C98 ,99 | | | CK73EB1E154K | CHIP C | 0.15UF | K | | |
| C100,101 | | | CE04CW1HR22M | ELECTRO | 0.22UF | 50WV | | |
| C102,103 | | | CK73EB1H333K | CHIP C | 0.033UF | K | | |
| C104,105 | | | CK73FB1H562K | CHIP C | 5600PF | K | | |
| C106,107 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C108,109 | | | CK73FB1H102K | CHIP C | 1000PF | K | | |
| C110,111 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C112,113 | | | CK73FB1H102K | CHIP C | 1000PF | K | | |
| C114,115 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C116,117 | | | C93-1044-05 | CERAMIC | 2200PF | K | | |
| C118-121 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C122,123 | | | C93-1044-05 | CERAMIC | 2200PF | K | | |
| C124,125 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C126,127 | | | CE04CW1C470M | ELECTRO | 47UF | 16WV | | |
| C128,129 | | | CE04CW1C100M | ELECTRO | 10UF | 16WV | | |
| C130-137 | | | CK73EB1E224K | CHIP C | 0.22UF | K | | |
| - | | | E23-0151-04 | EARTH LUG | | | | |
| CN1 | 2D | | E58-0822-05 | RECTANGULAR RECEPTACLE | | | | |
| CN2 | 2D | | E40-9333-05 | FLAT CABLE CONNECTOR | | | | |
| CN3 | 3D | | E58-0828-05 | RECTANGULAR RECEPTACLE | | | | |
| CN4 | | | E40-3239-05 | PIN ASSY | | | | |
| 312 | 1D | | F01-1434-03 | HEAT SINK (for POWER ICs) | | | | |
| L1 -3 | | | L40-4791-17 | SMALL FIXED INDUCTOR (4.7UH, K) | | | | |

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M:Other Areas

75

▲ indicates safety critical components.

KDC-8020R

PARTS LIST

× New Parts

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| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | | | | Desti- nation 仕 向 | Re- marks 備考 |
|------------------|----------------|-------------------|-------------------|---------------------------------|------|---|-------|-------------------------|--------------------|
| L4 | | | L40-1011-17 | SMALL FIXED INDUCTOR (100UH) | | | | | |
| L5 ,6 | | | L40-4791-17 | SMALL FIXED INDUCTOR (4.7UH,K) | | | | | |
| L7 | | | L79-0914-05 | LC FILTER | | | | | |
| L8 -10 | | | L92-0302-05 | CHIP FERRITE | | | | | |
| X1 | | | L77-2003-05 | CRYSTAL RESONATOR (8.388608MHz) | | | | | |
| X2 | | | L78-0530-05 | RESONATOR (4.00MHz) | | | | | |
| X3 | | | L77-2002-05 | CRYSTAL RESONATOR (4.3320MHz) | | | | | |
| X4 | | | L77-1166-05 | CRYSTAL RESONATOR (7.2MHz) | | | | | |
| H | 2D | | N30-3004-46 | PAN HEAD MACHINE SCREW | | | | | |
| J | 1D | | N30-3025-46 | PAN HEAD MACHINE SCREW | | | | | |
| K | 2D | | N83-3006-46 | PAN HEAD TAPITITE SCREW | | | | | |
| L | 2D | | N30-2604-46 | PAN HEAD MACHINE SCREW | | | | | |
| R1 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R2 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R3 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R4 | | | R92-2063-05 | CHIP R | 680 | J | 1/2W | | |
| R5 | | | RK73EB2B221J | CHIP R | 220 | J | 1/8W | | |
| R6 | | | RK73FB2A432J | CHIP R | 4.3K | J | 1/10W | | |
| R7 ,8 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R9 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |
| R10 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R11 | | | R92-2104-05 | CHIP R | 2.2 | J | 1W | | |
| R12 ,13 | | | RK73BB2B392J | CHIP R | 3.9K | J | 1/8W | | |
| R14 | | | RK73EB2B563J | CHIP R | 56K | J | 1/8W | | |
| R15 | | | R92-0366-05 | CHIP R | 560 | J | 1W | | |
| R16 | | | RK73FB2A822J | CHIP R | 8.2K | J | 1/10W | | |
| R17 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R18 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R19 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R20 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R21 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R22 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R23 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R24 -29 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R30 ,31 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |
| R32 | | | RK73BB2B224J | CHIP R | 220K | J | 1/8W | | |
| R33 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R34 | | | RK73EB2B333J | CHIP R | 33K | J | 1/8W | | |
| R35 ,36 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R37 ,38 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R39 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R40 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | |
| R41 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R42 | | | RK73BB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R43 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R44 ,45 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R46 ,47 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R48 ,49 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R50 | | | RK73FB2A221J | CHIP R | 220 | J | 1/10W | | |
| R51 -53 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R54 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R55 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |
| R56 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R57 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |

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M:Other Areas

△ indicates safety critical components.

KDC-8020R

PARTS LIST

× New Parts

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| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | | | | Desti- nation 仕向 | Re- marks 備考 |
|------------------|----------------|-------------------|-------------------|-----------------------|------|---|-------|------------------------|--------------------|
| R58 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R59 ,60 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R61 ,62 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R63 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R64 ,65 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R66 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R67 ,68 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R69 ,70 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R71 | | | R92-2028-05 | CHIP R | 1K | D | 1/10W | | |
| R72 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R73 | | | R92-2044-05 | CHIP R | 2.7K | D | 1/10W | | |
| R74 ,75 | | | RK73EB2B222J | CHIP R | 2.2K | J | 1/8W | | |
| R76 -80 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R81 | | | RK73EB2B103J | CHIP R | 10K | J | 1/8W | | |
| R82 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R83 | | | RK73EB2B103J | CHIP R | 10K | J | 1/8W | | |
| R84 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R85 | | | RK73EB2B221J | CHIP R | 220 | J | 1/8W | | |
| R86 -88 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R89 ,90 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R91 -93 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R94 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R95 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R96 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R97 ,98 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R99 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | |
| R100,101 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R102 | | | RK73EB2B103J | CHIP R | 10K | J | 1/8W | | |
| R103 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R104,105 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | |
| R106,107 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R117-119 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R120 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R122,123 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R124 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| R125 | | | RK73EB2B221J | CHIP R | 220 | J | 1/8W | | |
| R126 | | | RK73FB2A822J | CHIP R | 8.2K | J | 1/10W | | |
| R127 | | | RK73FB2A163J | CHIP R | 16K | J | 1/10W | | |
| R128 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R129 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R130 | | | RK73FB2A301J | CHIP R | 300 | J | 1/10W | | |
| R131 | | | RK73EB2B331J | CHIP R | 330 | J | 1/8W | | |
| R132 | | | RK73FB2A470J | CHIP R | 47 | J | 1/10W | | |
| R133 | | | RK73FB2A822J | CHIP R | 8.2K | J | 1/10W | | |
| R134 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R135 | | | RK73FB2A562J | CHIP R | 5.6K | J | 1/10W | | |
| R136,137 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R138 | | | RK73EB2B100J | CHIP R | 10 | J | 1/8W | | |
| R139 | | | RK73EB2B2R2J | CHIP R | 2.2 | J | 1/8W | | |
| R140 | | | RK73EB2B220J | CHIP R | 22 | J | 1/8W | | |
| R141 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R142,143 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R144 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R145 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R146 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |

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KDC-8020R

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| Ref. No. 参照番号 | Address 位 置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | | | | | Desti- nation 仕 向 | Re- marks 備考 |
|------------------|----------------|-------------------|-------------------|-------------------------------|------|---|-------|--|-------------------------|--------------------|
| R147 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | | |
| R148 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | | |
| R149 | | | RK73FB2A822J | CHIP R | 8.2K | J | 1/10W | | | |
| R150 | | | RK73FB2A752J | CHIP R | 7.5K | J | 1/10W | | | |
| R151 | | | RK73FB2A562J | CHIP R | 5.6K | J | 1/10W | | | |
| R152 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | | |
| R153 | | | RK73FB2A332J | CHIP R | 3.3K | J | 1/10W | | | |
| R154 | | | RK73FB2A221J | CHIP R | 220 | J | 1/10W | | | |
| R155 | | | RK73FB2A752J | CHIP R | 7.5K | J | 1/10W | | | |
| R156 | | | RK73FB2A912J | CHIP R | 9.1K | J | 1/10W | | | |
| R157 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | | |
| R158, 159 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | | |
| R160, 161 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | | |
| R162-179 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | | |
| R180, 181 | | | RK73FB2A473J | CHIP R | 47K | J | 1/10W | | | |
| R182 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | | |
| R183 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | | |
| R184 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | | |
| R186, 187 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | | |
| R188, 189 | | | RK73FB2A203J | CHIP R | 20K | J | 1/10W | | | |
| R190, 191 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | | |
| R192, 193 | | | RK73FB2A183J | CHIP R | 18K | J | 1/10W | | | |
| R194, 195 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | | |
| R196, 197 | | | RK73FB2A183J | CHIP R | 18K | J | 1/10W | | | |
| R198, 199 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | | |
| R200, 201 | | | RK73FB2A681J | CHIP R | 680 | J | 1/10W | | | |
| R202, 203 | | | RK73FB2A392J | CHIP R | 3.9K | J | 1/10W | | | |
| R204, 205 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | | |
| R206, 207 | | | RK73FB2A681J | CHIP R | 680 | J | 1/10W | | | |
| R208, 209 | | | RK73FB2A392J | CHIP R | 3.9K | J | 1/10W | | | |
| R210, 211 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | | |
| R212, 213 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | | |
| R214-217 | | | RK73FB2A681J | CHIP R | 680 | J | 1/10W | | | |
| R218, 219 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | | |
| R220-227 | | | RK73EB2B2R2J | CHIP R | 2.2 | J | 1/8W | | | |
| R228-236 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | | |
| R238, 239 | | | RK73FB2A622J | CHIP R | 6.2K | J | 1/10W | | | |
| VR1 | | | R12-3100-05 | TRIMMING POT. (10K Ω) (FM SD) | | | | | | |
| D1 | | | RL254 | DIODE | | | | | | |
| D2 , 3 | | | AM01Z | DIODE | | | | | | |
| D2 , 3 | | | ERA15-01 | DIODE | | | | | | |
| D4 | | | MA8082-M | ZENER DIODE | | | | | | |
| D5 | | | RD11JS(B2) | ZENER DIODE | | | | | | |
| D6 | | | AM01Z | DIODE | | | | | | |
| D6 | | | ERA15-01 | DIODE | | | | | | |
| D7 | | | MA110 | DIODE | | | | | | |
| D7 | | | 1SS355 | DIODE | | | | | | |
| D8 | | | DA204K | DIODE | | | | | | |
| D9 , 10 | | | MA8062-M | ZENER DIODE | | | | | | |
| D11 | | | 1SS184 | DIODE | | | | | | |
| D12 , 13 | | | MA110 | DIODE | | | | | | |
| D12 , 13 | | | 1SS355 | DIODE | | | | | | |
| D14 , 15 | | | DA204K | DIODE | | | | | | |
| D17 | | | MA110 | DIODE | | | | | | |

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|------------------|----------------|-------------------|-------------------|-------------------------|-------------------------|--------------------|
| D17 | | | 1SS355 | DIODE | | |
| D18 -20 | | | 1SS184 | DIODE | | |
| D21 | | | MA110 | DIODE | | |
| D21 | | | 1SS355 | DIODE | | |
| D22 -24 | | | 1SS181 | DIODE | | |
| D25 -27 | | | DA204K | DIODE | | |
| D28 | | | MA110 | DIODE | | |
| D28 | | | 1SS355 | DIODE | | |
| D30 ,31 | | | 1SS181 | DIODE | | |
| D33 ,34 | | | RD5.6JS(B2) | ZENER DIODE | | |
| IC1 | | | M5278D05 | IC(VOLTAGE REGULATOR) | | |
| IC2 | | | M5237ML | IC(VOLTAGE REGULATOR) | | |
| IC3 | | | S-80740AN-D4 | IC | | |
| IC4 | | * | M38067MCD155FP | MI-COM IC | | |
| IC5 | | | LC3564QM-10 | IC | | |
| IC6 | | | TC74HC02AF | IC | | |
| IC7 | | | KKZ02F | MOS-IC | | |
| IC8 | | | SAA6579T | IC | | |
| IC9 | | | LM7001M | ANALOGUE IC | | |
| IC10 | | | TC4W66F | IC | | |
| IC11,12 | | | NJM4565MD | IC(OP AMP X2) | | |
| IC14 | | | TEA6320T | ANALOGUE IC | | |
| IC15,16 | 2D | | AN7190K | ANALOGUE IC | | |
| Q1 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q1 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q2 | | | 2SB1277 | TRANSISTOR | | |
| Q3 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q3 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q4 | | | 2SA1428 | TRANSISTOR | | |
| Q5 | | | 2SB1565F(E,F) | TRANSISTOR | | |
| Q7 | | | 2SD2396F40 | TRANSISTOR | | |
| Q8 | | | 2SB1565F(E,F) | TRANSISTOR | | |
| Q9 | | | 2SC2412K | TRANSISTOR | | |
| Q10 | | | 2SB1277 | TRANSISTOR | | |
| Q11 | | | 2SA1037K | TRANSISTOR | | |
| Q12 | | | DTA124EK | DIGITAL TRANSISTOR | | |
| Q12 | | | XDA124EK | DIGITAL TRANSISTOR | | |
| Q13 ,14 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q13 ,14 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q15 | | | 2SC2412K | TRANSISTOR | | |
| Q16 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q16 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q19 | | | DTA144EK | DIGITAL TRANSISTOR | | |
| Q20 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q20 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q21 | | | 2SA1037K | TRANSISTOR | | |
| Q22 ,23 | | | DTA124EK | DIGITAL TRANSISTOR | | |
| Q22 ,23 | | | XDA124EK | DIGITAL TRANSISTOR | | |
| Q24 | | | 2SB1326 | TRANSISTOR | | |
| Q25 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q25 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q26 | | | 2SB1326 | TRANSISTOR | | |
| Q27 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q27 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q28 | | | DTA124EK | DIGITAL TRANSISTOR | | |

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|------------------|----------------|-------------------|-------------------|-----------------------|-------------------------|--------------------|
| Q28 | | | XDA124EK | DIGITAL TRANSISTOR | | |
| Q29 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q29 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q30 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q30 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q31 | | | 2SA1362(Y) | TRANSISTOR | | |
| Q32 ,33 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q32 ,33 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q34 | | | 2SA1362(Y) | TRANSISTOR | | |
| Q35 | | | 2SK536 | FET | | |
| Q36 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q36 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q37 | | | 2SA1037K | TRANSISTOR | | |
| Q38 | | | 2SK536 | FET | | |
| Q39 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q39 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q40 ,41 | | | 2SC2412K | TRANSISTOR | | |
| Q42 | | | DTC144EK | DIGITAL TRANSISTOR | | |
| Q42 | | | XDC144EK | DIGITAL TRANSISTOR | | |
| Q43 | | | 2SA1037K | TRANSISTOR | | |
| Q44 | | | DTC114TK | DIGITAL TRANSISTOR | | |
| Q45 | | | DTA124EK | DIGITAL TRANSISTOR | | |
| Q45 | | | XDA124EK | DIGITAL TRANSISTOR | | |
| Q46 ,47 | | | 2SB1277 | TRANSISTOR | | |
| Q48 ,49 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q48 ,49 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q50 ,51 | | | DTA124EK | DIGITAL TRANSISTOR | | |
| Q50 ,51 | | | XDA124EK | DIGITAL TRANSISTOR | | |
| Q52 ,53 | | | 2SD2114K | TRANSISTOR | | |
| Q54 -57 | | | 2SD2114K | TRANSISTOR | | |
| TH1 | | | NTH4G42B104E01 | THERMISTOR (100K) | | |
| TU1 | 2D | * | W02-1446-05 | FM/AM FRONT-END | | |

CD PLAYER UNIT (X32-4010-00)

| | | | | | | |
|---------|--|--|----------------|----------|---------|-------|
| D5 -8 | | | B30-1426-05 | LED | | |
| C1 | | | CK73EB1E104K | CHIP C | 0.10UF | K |
| C2 ,3 | | | CK73EB1C105K | CHIP C | 1.0UF | K |
| C4 | | | C92-1020-05 | ELECTRO | 10UF | 6.3WV |
| C5 | | | C92-0012-05 | CHIP TAN | 22UF | 6.3WV |
| C6 | | | CC73FCH1H020C | CHIP C | 2.0PF | C |
| C7 | | | CK73EB1E104K | CHIP C | 0.10UF | K |
| C8 | | | CK73EB1C105K | CHIP C | 1.0UF | K |
| C9 | | | CC73FCH1H101J | CHIP C | 100PF | J |
| C10 | | | CK73FB1H682K | CHIP C | 6800PF | K |
| C11 ,12 | | | CK73FB1H222K | CHIP C | 2200PF | K |
| C13 | | | CK73EB1E273K | CHIP C | 0.027UF | K |
| C14 ,15 | | | CK73EB1E104K | CHIP C | 0.10UF | K |
| C16 | | | CK73FB1H472K | CHIP C | 4700PF | K |
| C17 | | | CK73FB1E473KTA | CHIP C | 0.047UF | K |
| C18 | | | CC73FCH1H151J | CHIP C | 150PF | J |
| C19 | | | CC73FCH1H471J | CHIP C | 470PF | J |
| C20 | | | CK73EB1C105K | CHIP C | 1.0UF | K |
| C21 | | | CK73EB1H102K | CHIP C | 1000PF | K |
| C22 ,23 | | | CK73EB1H223K | CHIP C | 0.022UF | K |

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|------------------|---------------|-------------------|-------------------|--------------------------------|---------|-------|------------------------|--------------------|
| C24 | | | CK73EB1C334K | CHIP C | 0.33UF | K | | |
| C25 | | | CK73EB1H102K | CHIP C | 1000PF | K | | |
| C31 , 32 | | | CK73FB1E473KTA | CHIP C | 0.047UF | K | | |
| C33 | | | CK73EB1E104K | CHIP C | 0.10UF | K | | |
| C34 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | |
| C35 , 36 | | | CC73FCH1H100D | CHIP C | 10PF | D | | |
| C37 , 38 | | | CK73EB1E104K | CHIP C | 0.10UF | K | | |
| C41 , 42 | | | CK73FB1H103K | CHIP C | 0.010UF | K | | |
| C43 , 44 | | | CK73FB1H471K | CHIP C | 470PF | K | | |
| C45 , 46 | | | CC73FCH1H820J | CHIP C | 82PF | J | | |
| C47 , 48 | | | CK73FB1H222K | CHIP C | 2200PF | K | | |
| C50 , 51 | | | C92-1019-05 | ELECTRO | 4.7UF | 16WV | | |
| C52 , 53 | | | C92-1020-05 | ELECTRO | 10UF | 6.3WV | | |
| C55 | | | CK73EB1C105K | CHIP C | 1.0UF | K | | |
| C60 | | | C92-1019-05 | ELECTRO | 4.7UF | 16WV | | |
| C61 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | |
| C62 | | | CK73EB1H223K | CHIP C | 0.022UF | K | | |
| C63 | | | CK73FB1H223KTA | CHIP C | 0.022UF | K | | |
| C66 | | | CK73EB1E184K | CHIP C | 0.18UF | K | | |
| C67 | | | CK73EB1C394K | CHIP C | 0.39UF | K | | |
| C69 | | | CK73EB1E104K | CHIP C | 0.10UF | K | | |
| C70 | | | CK73EB1C105K | CHIP C | 1.0UF | K | | |
| CN1 | | | E40-9337-05 | FLAT CABLE CONNECTOR | | | | |
| CN2 | | | E40-9338-05 | FLAT CABLE CONNECTOR | | | | |
| L1 | | | L40-1001-31 | SMALL FIXED INDUCTOR (10UH) | | | | |
| L2 -4 | | | L33-0916-05 | SMALL FIXED INDUCTOR (4.7UH) | | | | |
| X1 | | | L77-2011-15 | CRYSTAL RESONATOR (16.9344MHz) | | | | |
| X2 | | | L78-0528-05 | RESONATOR (8.38MHz) | | | | |
| R1 | | | RK73FB2A820J | CHIP R | 82 | J | 1/10W | |
| R2 | | | RK73EB2B100J | CHIP R | 10 | J | 1/8W | |
| R3 , 4 | | | RK73FB2A124J | CHIP R | 120K | J | 1/10W | |
| R5 -8 | | | RK73FB2A333J | CHIP R | 33K | J | 1/10W | |
| R9 | | | RK73FB2A153J | CHIP R | 15K | J | 1/10W | |
| R10 | | | RK73FB2A824J | CHIP R | 820K | J | 1/10W | |
| R11 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | |
| R12 | | | RK73FB2A393J | CHIP R | 39K | J | 1/10W | |
| R13 | | | RK73FB2A273J | CHIP R | 27K | J | 1/10W | |
| R14 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | |
| R15 | | | RK73FB2A394J | CHIP R | 390K | J | 1/10W | |
| R20 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | |
| R21 | | | RK73EB2B105J | CHIP R | 1.0M | J | 1/8W | |
| R22 | | | RK73FB2A124J | CHIP R | 120K | J | 1/10W | |
| R23 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | |
| R24 | | | RK73FB2A681J | CHIP R | 680 | J | 1/10W | |
| R25 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | |
| R26 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | |
| R30 | | | RK73EB2B753J | CHIP R | 75K | J | 1/8W | |
| R31 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | |
| R32 | | | RK73FB2A4R7J | CHIP R | 4.7 | J | 1/10W | |
| R35 , 36 | | | RK73FB2A183J | CHIP R | 18K | J | 1/10W | |
| R37 , 38 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | |
| R39 , 40 | | | RK73FB2A123J | CHIP R | 12K | J | 1/10W | |
| R41 , 42 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | |

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81

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|------------------|----------------|-------------------|-------------------|--------------------------|------|---|-------|------------------------|--------------------|
| R43 , 44 | | | RK73EB2B681J | CHIP R | 680 | J | 1/8W | | |
| R45 | | | RK73FB2A561J | CHIP R | 560 | J | 1/10W | | |
| R46 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R47 | | | RK73FB2A681J | CHIP R | 680 | J | 1/10W | | |
| R48 | | | RK73FB2A202J | CHIP R | 2.0K | J | 1/10W | | |
| R50 | | | RK73FB2A241J | CHIP R | 240 | J | 1/10W | | |
| R51 | | | RK73FB2A333J | CHIP R | 33K | J | 1/10W | | |
| R52 | | | RK73EB2B472J | CHIP R | 4.7K | J | 1/8W | | |
| R53 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |
| R54 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R55 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R56 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | |
| R57 | | | RK73EB2B104J | CHIP R | 100K | J | 1/8W | | |
| R58 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R59 , 60 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R61 , 62 | | | RK73EB2B472J | CHIP R | 4.7K | J | 1/8W | | |
| R63 | | | RK73EB2B102J | CHIP R | 1.0K | J | 1/8W | | |
| R64 | | | RK73FB2A472J | CHIP R | 4.7K | J | 1/10W | | |
| R65 | | | RK73FB2A752J | CHIP R | 7.5K | J | 1/10W | | |
| R66 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R67 | | | RK73FB2A223J | CHIP R | 22K | J | 1/10W | | |
| R68 | | | RK73FB2A183J | CHIP R | 18K | J | 1/10W | | |
| R69 | | | RK73FB2A334J | CHIP R | 330K | J | 1/10W | | |
| R71 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | |
| R72 | | | RK73EB2B562J | CHIP R | 5.6K | J | 1/8W | | |
| R73 | | | RK73FB2A103J | CHIP R | 10K | J | 1/10W | | |
| R74 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R75 | | | RK73FB2A683J | CHIP R | 68K | J | 1/10W | | |
| R80 | | | RK73FB2A224J | CHIP R | 220K | J | 1/10W | | |
| R81 | | | RK73FB2A563J | CHIP R | 56K | J | 1/10W | | |
| R82 | | | RK73FB2A683J | CHIP R | 68K | J | 1/10W | | |
| R83 | | | RK73FB2A102J | CHIP R | 1.0K | J | 1/10W | | |
| R84 | | | RK73EB2B223J | CHIP R | 22K | J | 1/8W | | |
| R85 | | | RK73FB2A104J | CHIP R | 100K | J | 1/10W | | |
| R86 | | | RK73FB2A154J | CHIP R | 150K | J | 1/10W | | |
| R90 | | | RK73EB2B471J | CHIP R | 470 | J | 1/8W | | |
| R91 | | | RK73EB2B331J | CHIP R | 330 | J | 1/8W | | |
| R92 | | | RK73FB2A222J | CHIP R | 2.2K | J | 1/10W | | |
| W1 -47 | | | R92-2053-05 | CHIP R | 0 | J | 1/8W | | |
| W49 -53 | | | R92-2053-05 | CHIP R | 0 | J | 1/8W | | |
| W81 -86 | | | R92-2052-05 | CHIP R | 0 | J | 1/10W | | |
| S1 , 2 | | | S40-1139-05 | PUSH SWITCH | | | | | |
| D1 | | | MA110 | DIODE | | | | | |
| D1 | | | 1SS355 | DIODE | | | | | |
| D4 | | | MA8091 | ZENER DIODE | | | | | |
| IC1 | | | AN8806SB | ANALOGUE IC | | | | | |
| IC2 | | | MN662720RB | MOS-IC | | | | | |
| IC3 | | | SM5873BS | MOS-IC | | | | | |
| IC4 | | | NJM4565MD | IC(OP AMP X2) | | | | | |
| IC5 | | | TA78L05F | IC(5V VOLTAGE REGULATOR) | | | | | |
| IC6 | | | 78002BGC603-AB8 | MI-COM IC | | | | | |
| IC7 | | | BA6795FP | ANALOGUE IC | | | | | |
| IC8 | | | NJM4565MD | IC(OP AMP X2) | | | | | |

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|------------------|----------------|-------------------|-------------------|-------------------------|-------------------------|--------------------|
| PH1 -4 | | | PT461T | PHOTO TRANSISTOR | | |
| Q1 | | | 2SA1362 | TRANSISTOR | | |
| Q2 ,3 | | | DTC124EK | DIGITAL TRANSISTOR | | |
| Q2 ,3 | | | XDC124EK | DIGITAL TRANSISTOR | | |
| Q4 | | | 2SD1624 | TRANSISTOR | | |
| Q5 | | | 2SA1362 | TRANSISTOR | | |
| Q6 | | | 2SA1037K | TRANSISTOR | | |
| TH1 | | | NTH5G40B333K01 | THERMISTOR | | |

MECHANISM ASS'Y (X92-3010-00)

| | | | | | | |
|----|--------|---|-------------|----------------------|--|--|
| 1 | 2A | * | A10-2261-53 | CHASSIS CALKING ASSY | | |
| 2 | 1A | | A10-2264-03 | CHASSIS | | |
| 5 | 2B | | D10-2806-03 | LEVER | | |
| 6 | 3B | | D10-2807-24 | LEVER | | |
| 7 | 3B | | D10-2808-24 | LEVER | | |
| 8 | 2A | | D10-2809-14 | LEVER | | |
| 9 | 3B | * | D10-2936-04 | LEVER ASSY | | |
| 10 | 3B | | D10-2811-03 | LEVER | | |
| 11 | 3A | | D10-2812-24 | LEVER | | |
| 12 | 3A | | D10-2813-24 | LEVER | | |
| 13 | 3B | * | D10-2814-13 | SLIDER | | |
| 14 | 3A | * | D10-2815-14 | SLIDER | | |
| 15 | 2B | * | D10-2816-23 | SLIDER | | |
| 17 | 2B | * | D10-2818-24 | LEVER ASSY | | |
| 19 | 2B | | D10-2820-04 | ARM ASSY | | |
| 21 | 2A | | D13-1114-04 | WORM | | |
| 22 | 2A | | D13-1115-04 | GEAR | | |
| 23 | 2B | | D13-1116-04 | GEAR | | |
| 24 | 2B | | D13-1117-13 | GEAR | | |
| 25 | 2B | | D13-1118-04 | GEAR | | |
| 26 | 2B | | D13-1119-04 | GEAR | | |
| 27 | 2A | | D13-1120-04 | GEAR | | |
| 28 | 2B | | D13-1121-04 | GEAR | | |
| 29 | 2B | | D13-1122-04 | GEAR | | |
| 30 | 2B | | D13-1123-04 | GEAR | | |
| 31 | 2B | * | D13-1124-23 | GEAR | | |
| 32 | 2B | | D13-1144-14 | GEAR | | |
| 33 | 2B | * | D14-0636-14 | ROLLER | | |
| 34 | 2A | | D21-2138-34 | SHAFT | | |
| 35 | 2A | | D21-2139-24 | SHAFT | | |
| 36 | 2B | | D21-2140-14 | SHAFT | | |
| 38 | 2B | | D23-0912-04 | RETAINER | | |
| 39 | 2B | | D23-0913-04 | RETAINER | | |
| 40 | 1A, 1B | | D39-0214-13 | DAMPER | | |
| 42 | 2A | | G01-2656-14 | EXTENSION SPRING | | |
| 43 | 1A, 1B | | G01-2662-04 | EXTENSION SPRING | | |
| 44 | 1B | | G01-2663-14 | EXTENSION SPRING | | |
| 45 | 1B | | G01-2664-14 | EXTENSION SPRING | | |
| 46 | 2B | | G01-2665-14 | EXTENSION SPRING | | |
| 47 | 3B | | G01-2666-04 | EXTENSION SPRING | | |
| 48 | 3B | * | G01-2679-04 | TORSION COIL SPRING | | |
| 49 | 3B | * | G02-1162-24 | FLAT SPRING | | |
| 50 | 2A | | G02-1163-04 | FLAT SPRING ASSY | | |
| 51 | 2B | | G02-1156-04 | FLAT SPRING | | |
| 53 | 2A | | G02-1184-14 | FLAT SPRING | | |

L:Scandinavia

K:USA

P:Canada

R:Mexico

Y:PX(Far East, Hawaii)

T:England

E:Europe

G:Germany

Y:AAFES(Europe)

X:Australia

M:Other Areas

⚠ indicates safety critical components.

KDC-8020R

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

| Ref. No. 参照番号 | Address 位置 | New Parts 新 | Parts No. 部品番号 | Description 部品名／規格 | Desti- nation 仕向 | Re- marks 備考 |
|------------------|---------------|-------------------|-------------------|------------------------|------------------------|--------------------|
| 54 | 1B | * | G02-1169-14 | FLAT SPRING ASSY | | |
| 55 | 1B | | J11-0605-03 | CLAMPER | | |
| 57 | 3A | * | J19-4519-23 | HOLDER | | |
| 58 | 1B | * | J19-4564-04 | HOLDER ASSY | | |
| 59 | 1A, 1B | | J19-4521-03 | HOLDER | | |
| 61 | 1A | | J21-7457-13 | MOUNTING HARDWARE | | |
| 62 | 2A | | J21-7458-14 | MOUNTING HARDWARE | | |
| 63 | 1A, 1B | | J21-7459-04 | MOUNTING HARDWARE | | |
| 64 | 3B | * | J21-7460-13 | MOUNTING HARDWARE | | |
| 65 | 1A | | J21-7461-13 | MOUNTING HARDWARE | | |
| 66 | 2B | | J21-7462-24 | MOUNTING HARDWARE ASSY | | |
| 68 | 2B | | J90-0731-22 | GUIDE | | |
| 69 | 2B | * | J90-0732-13 | GUIDE | | |
| 70 | 2B | | J90-0733-04 | GUIDE | | |
| 73 | 2B | | W10-0704-04 | PRISM | | |
| FC1 | 3A | | E39-0055-05 | FLAT CABLE | | |
| A | 1A, 2A | | N09-4093-05 | MACHINE SCREW (2X3.5) | | |
| B | 1B | | N39-2020-46 | PAN HEAD MACHIN SCREW | | |
| C | 2A | | N39-1722-46 | PAN HEAD MACHIN SCREW | | |
| D | 2B | | N19-2022-04 | FLAT WASHER | | |
| E | 1A, 3B | | N39-2025-46 | PAN HEAD MACHIN SCREW | | |
| F | 3A | * | N09-4120-05 | TAPTITE SCREW (2X3.5) | | |
| M1 | 2A | | T42-0727-24 | MOTOR ASSY | | |
| M2 , 3 | 2A | | T42-0731-05 | DC MOTOR | | |
| PU1 | 2A | | T25-0204-05 | OPTICAL PICKUP HEAD | | |

L:Scandinavia

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K:USA

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P:Canada

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M:Other Areas

R:Mexico

G:Germany

 indicates safety critical components.

KDC-8020R

KDC-8020R

SPECIFICATIONS

Specifications subject to change without notice.

Disc Section

| | |
|---------------------------------|------------------------------|
| Laser Diode | GaAlAs ($\lambda=780$ nm) |
| Digital Filter (D/A) | 8 Times Over Sampling |
| D/A Converter | 1 bit (with D.P.A.C) |
| Spindle Speed | 500~200 rpm (CLV) |
| Wow & Flutter | Below Measurable Limit |
| Frequency Response | 10 Hz ~ 20 kHz (± 1 dB) |
| Total Harmonic Distortion | 0.01 % (1 kHz) |
| Signal to Noise Ratio | 93 dB |
| Dynamic Range | 96 dB |
| Channel Separation | 85 dB |

FM tuner section

| | |
|--|-------------------------|
| Frequency Range | 87.5 MHz ~ 108.0 MHz |
| Channel Space | 50 kHz |
| Usable Sensitivity (DIN) | 0.9 μ V/75 Ω |
| Quieting Sensitivity (S/N = 46 dB) | 1.6 μ V/75 Ω |
| Frequency Response (± 3 dB) | 30 Hz ~ 15 kHz |
| Signal to Noise Ratio | 68 dB |
| Selectivity (DIN) | 70 dB |
| 19 kHz Carrier Leakage | 65 dB |
| Stereo Separation | 35 dB (1 kHz) |

MW tuner section

| | |
|--------------------------|--------------------|
| Frequency Range | 531 kHz ~ 1611 kHz |
| Usable Sensitivity | 30 μ V |

LW tuner section

| | |
|--------------------------|-------------------|
| Frequency Range | 153 kHz ~ 281 kHz |
| Usable Sensitivity | 60 μ V |

Audio section

| | |
|--|--|
| Maximum Power Output | 25 W x 4 |
| Power Output (4 Ω , 1 kHz, 10% THD) | 20 W x 4 |
| (4 Ω , 1 kHz, 1% THD) | 15 W x 4 |
| Tone Action | Bass: ± 8 dB (100 Hz) Treble: ± 8 dB (10 kHz) |
| Preout Level | 1.0 V (10 k Ω) |

General

| | |
|-------------------------------------|--------------------|
| Operating Voltage | 14.4 V (11 ~ 16 V) |
| Current Consumption | 5.0 A |
| Operating Temperature | -10 ~ 50 °C |
| Installation Size (W x H x D) | 182 x 52 x 163 mm |
| Weight | 1.6 kg |

Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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